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THE DIAGNOSIS AND TREATMENT OF SYPHILITIC AFFECTIONS OF THE NERVOUS SYSTEM.

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ON

SYPHILITIC AFFECTIONS OF THE NERVOUS SYSTEM;

THEIR DIAGNOSIS AND TREATMENT.

BY

T. M'CALL ANDERSON, M.D.,

PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF GLASGOW.

DIED 25th Jany. 1908.



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PREFACE.

If a perusal of these pages helps to a more general recognition of the great frequency of Syphilitic Affections of the Nervous System, and of their amenability, in many cases, to early and energetic treatment, the purpose of the author in penning them will have been served.

2 Woodside Terrace, Glasgow,
January 1st, 1889.



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THE DIAGNOSIS AND TREATMENT OF SYPHILITIC AFFECTIONS OF THE NERVOUS SYSTEM.

THE DIAGNOSIS AND TREATMENT OF SYPHILITIC AFFECTIONS OF THE NERVOUS SYSTEM.

IN a paper published recently in the *British Medical Journal*[1] entitled, "Is Mercury an Antidote to Syphilis?" I find the following remarks: "Diday, and in this opinion I am inclined to agree with him, considers that modern syphilis, as the present generation sees it, is, in most cases, a mild disease generally curable enough; and adds that but few cases are followed by visceral disease or affections of the nerve-centres. He in no way disapproves of mercury; but recommends it only when severe outbreaks of the disease take place, in order to lessen their effects on the health. 'Mild' syphilis he treats without mercury."

But few cases of syphilis are followed by affections of the nerve centres, and mercury is only necessary for severe outbreaks of the disease! Such, I have reason to believe, are not only the views of the writer of the paper, but also of a large number of my professional brethren, and as they are almost diametrically opposed to my own experience, it is of the greatest importance, in the interests of the community, that we should endeavour to arrive at the truth. My view may be stated thus—that just because "mild" syphilis is apt to be treated in a cavalier fashion, and without due care and persistence, disease of the nervous system is very apt to follow

[1] November 27th, 1886. By Dr. Chas. R. Drysdale.

in its wake; and that such disease is much more common than is generally supposed. As a basis for the remarks which follow, I have collected the following twenty-four cases which have occurred recently in my own practice, and of which I have sufficiently accurate records, although they constitute but a fraction of those which have come under my observation.

The first four cases specially illustrate syphilitic affections of *nerves.*

1. *Syphilitic Sciatica.*—Robert C., aet. 36, an engine-fitter, was admitted into the Western Infirmary of Glasgow on January 16th, 1886, on account of pain in the lumbar region of the spine and in the left lower extremity, along the course of the sciatic nerve, of two years' duration. At first the pain was limited to the spine, but it soon spread to the sciatic nerve, and was much aggravated by movement.

Evidences of Syphilis.—Eight years prior to admission he had an indurated sore on the penis, which was soon followed by a widespread eruption, sore throat, and headache, which disappeared under treatment. Six months before I saw him an eruption made its appearance on the inner side of the right thigh, left upper arm, shoulder, and left side of the chest, of which coppery cicatrices remained. The pain complained of was decidedly worst at night.

Treatment.—Half a drachm of iodide of potassium was given thrice daily, dissolved in water.

Result.—In less than ten days all trace of pain was gone, soon after which he left the hospital.

2. *Facial Paralysis in connection with a Tumour in the Region of the Parotid Gland.*—A carter, 48 years of age, was admitted into the Western Infirmary, on February 2nd, 1880, suffering from complete paralysis of the left side of the face. He had previously enjoyed pretty good health, although he had been

troubled with bronchitis for five or six years during the winter months. He had been married for seven years, and had three healthy children.

About six months before he came under observation a dark spot appeared behind the ramus of the jaw, on the left side This gradually enlarged, but soon subsided on the application of iodine. Shortly after this, however, the swelling began to spread forwards on the face, in the region of the parotid gland, until it attained a considerable size, extending from a little behind the ear to half-way between the ear and the nose, its most prominent part being about an inch above the normal level of the cheek. The sub-maxillary glands were unaffected. About the middle of January, 1880, he noticed the paralysis of the face, which was at first slight, but gradually increased until it became complete. At this time, too, he began to suffer from severe neuralgic pain, starting from the right side of the head and extending round to the left, soon also affecting the tumour.

On admission, he was found to be a strong, healthy-looking man, but the tumour on the left side of the face and the complete paralysis of the facial nerve gave him a very striking appearance. The paralyzed muscles did not respond to the Faradic current, but in an exaggerated degree, as compared with those on the sound side, to a feeble, continuous current. The tumour was firm, nodulated, and tender. Hearing was defective on the left side. It might be supposed that the deafness and the paralysis were dependent upon primary disease of the middle ear, implicating the facial nerve in the aqueduct of Fallopius. Of this, however, there was no trace; and, in facial paralysis dependent upon disease of the middle ear, certain symptoms are likely to occur which were not present in this case. In it the *velum palati* on the paralyzed side is apt to be depressed, and the uvula to be

bent like a bow, the point being carried forwards, and to the paralyzed side, and the base a little to the sound side. This condition of the palate and uvula is explained by the implication of the *nervus petrosus superficialis major*, which springs from the facial in the aqueduct of Fallopius, and communicates with Meckel's ganglion, from which the nerves supplying the *levator palati* and *azygos uvulae* are derived. There is also generally a partial loss of taste in the anterior two thirds of the tongue, on the affected side. This perversion of taste, according to Claude Bernard, is due either to " a modification of the circulation of the part, or to deficient erection of the papillae of the tongue preventing proper contact between them and the sapid substances." This is the result of paralysis of the *chorda tympani* nerve—a branch of the facial which joins the lingual branch of the fifth nerve—as is proved by the slightly metallic taste, first noticed by Duchenne, to result from Faradization of the membrane of the tympanum, which, at the same time, stimulates the *chorda tympani.*

The more obvious cause of the deafness was the presence of the tumour, which, to a certain extent, blocked the external auditory meatus, and probably induced also a certain amount of congestion of the middle ear, a view which was borne out by the improvement which took place in the hearing coincident with the subsidence of the tumour. There could be no reasonable doubt that the facial paralysis was also due to the pressure of the tumour, and not to extension of disease of the middle ear to the aqueduct of Fallopius.

The nature of the tumour was not very obvious at first ; but one of my surgical colleagues suspected that it was malignant. I was inclined, however, to hope that it was syphilitic, and all the more as he gave a history of a solitary sore on the penis at the age of nineteen. Accordingly, the iodide of potassium (10 grains thrice daily), was prescribed. This was begun

upon February 18th, and by the 28th the tumour had in great measure subsided, only a broad ridge of transverse thickening, midway between the ear and the angle of the jaw, being left. By this time, too, the hearing was restored, and the paralysis of the face was improved. He then left the infirmary, but was instructed to continue the iodide and to Faradize the muscles implicated. He has not since been heard of.

Although not directly connected with the present inquiry, the following case is worthy of record, as illustrating the enormous glandular enlargements sometimes produced by syphilis. I give it in the words of my friend, Dr. Hugh Cunningham, of Dumfries, who sent the patient to me for an opinion:—A gentleman, "aet. 35, consulted me on the 29th January, 1880, about an enormous tumour which he had on the right side, extending from the middle of the neck to several inches below the nipple, the cervical and axillary glands upon the left side being also hypertrophied. He had generally enjoyed good health, but had tried his constitution much by indulging freely in intoxicating liquors. About six years ago, too, he thinks he contracted syphilis, and again three years later; but, on the latter occasion at least, it is doubtful if the system was infected, seeing that he had suppurating buboes in the inguinal regions, and no ascertainable constitutional symptoms.

"More than two years ago he first noticed a swelling (no doubt of the posterior auricular glands) behind the right ear, which extended gradually down the right side of the neck, and implicated the thoracic and axillary glands. On the left side the glands in the neck and axilla were likewise much enlarged, but not to anything like the same extent as on the right. The inguinal glands on the right side were likewise considerably enlarged, but not those on the left. The enlargement on the

right side measured fourteen inches from its commencement in the posterior triangular space to its termination below the nipple and transversely, ten inches from the axilla forwards to near the middle line. Its surface was irregular and more or less nodulated, and covered with plexuses of veins; at its most prominent parts the skin was distinctly reddened. He was under the impression that the swelling on the right side was brought on by carrying about 200 boxes of oranges daily on his right shoulder, for a few days each month. He was a healthy-looking, well nourished man, and were it not for the presence of the swellings, would have considered himself in perfect health.

"Looking upon this case as one of Lymphadenoma, or Hodgkin's disease, and being well aware of the very serious nature of such a complaint, I requested him to go to Glasgow and see Professor M'Call Anderson, in the hope that he might be able to suggest something for his relief. Dr. M'Call Anderson wrote me as follows:—'This case is so peculiar that I asked Dr. Eben. Watson to see it along with me, especially as there is a surgical element in it. We were both at one with regard to it. We *hope* that it may be syphilitic, and, therefore, recommend that he should abstain from all manual labour, and take iodide of potassium (gr. x., gradually increased to gr. xxx.) three times a day. Should this fail to be beneficial, we fear the case must be looked upon as one of Lymphadenoma, and, in that case, it is likely, sooner or later, to spread and to undermine the health, perhaps, also, to cause enlargement of the liver and spleen. Should it suppurate at any part (of which there is no sign at present), the abscess must be treated on ordinary principles.' Such, briefly, is an outline of this case, which was treated in accordance with Dr. Anderson's recommendations and with results which much astonished me; for, on the 3rd March, a little more than a month after he began to

take the iodide, the patient wrote saying that the bumps were greatly reduced and that his breast was nearly level again.

"On the 14th April he presented himself for inspection at my request. I then found that the posterior auricular glands on the right side had disappeared. The large tumour was not a quarter of its former size, and the skin covering it had resumed its natural appearance. The glands of which it was composed were now quite separate and distinct—very hard and painless. The enlarged inguinal glands had disappeared, while the cervical glands on the left side of the neck were not larger than field beans, and those in the axilla scarcely the bulk of an almond."

On 12th July, Dr. Cunningham wrote me as follows:—"You will be glad to hear that A. W.'s tumours have almost entirely disappeared. Scarcely a vestige of any of them now exists."

3. *Paralysis of the Left Sixth Nerve.*—D. F., aet. 62, brass-worker, came under my care on April 25th, 1879. All of his immediate relatives were dead, the causes of death being unknown, but he himself seems to have enjoyed good health, although he was intemperate in his habits. His illness began about ten months before I saw him, and was attributed by him to his working much amongst red lead. At that time he began to complain of pain in the left side of the head, extending to the left ear, and soon involving the left eye, and of double vision for which he sought advice at the Eye Infirmary. These symptoms persisted in spite of treatment, and six months after their onset he began to experience a peculiar prickling sensation in the left side of the face. About this time it was noticed that his sense of hearing was much impaired, especially on the left side.

There was found to be marked paralysis of the left sixth

nerve as he could not turn the eye outwards at all: he had diplopia to the left and was hypermetropic.

On examining the ears I found that my watch was audible at the distance of an inch from the right ear, but only when pressed against the left. The tuning fork was heard more distinctly on the head than opposite either ear; the right membrana tympani was milky and concave, and the left more white and opaque. The eustachian tubes were pretty patent. It was obvious therefore that his deafness was due to catarrh of the middle ears, and not to the lesion producing the paralysis, although the two lesions might have arisen from the same parentage.

It was obvious that the lesion producing the paralysis was situated at the base of the brain, or of the skull, implicating the nerve, not at its deep origin, but in its course.

I came to the conclusion that it was syphilitic, for the following reasons:—

1st. The pain complained of was markedly nocturnal.

2nd. Paralysis of the sixth nerve is due to syphilis in a large proportion of cases.

3rd. The fauces were studded all over with cicatrices, the inguinal and posterior cervical glands were enlarged, and he had a node on the left tibia.

4th. He had been treated for a fortnight before I saw him with bromide of potassium, 30 grains thrice daily, without any benefit, but when (May 9th) the iodide was substituted for it he immediately improved (on the 11th he volunteered the statement that his new medicine had already done him good), so much so that he left the Hospital on May 19th. He was not cured but was "much improved" in every respect.

4. *Paralysis of the Right Third and Sixth Nerves.*—Wm. B. aet. 32, a carter, was admitted into the Western Infirmary on

September 28th, 1882, suffering from an affection of the right eye. Nine months before, an internal squint gradually came on, accompanied by double vision, both objects seen being on a level. This seems to have disappeared in about a month, but three months before admission he began to lose the power of elevating the upper lid, and to complain of giddiness, especially on suddenly leaving the recumbent posture. During the same time a small ulcer on the lip troubled him, and for a month pain in the right side of the head was frequently complained of.

On examining the right eye it presented the following abnormalities:—He could not raise the upper lid, the ptosis being complete; the pupil was widely dilated and did not respond to light, and he was unable to move the eye upwards, downwards, inwards, or outwards, showing that both third and sixth nerves were paralyzed.

As regards the seat of the lesion, it was probably at the base of the brain on the right side, near the pons, or in the sphenoidal fissure—the foramen of exit from the cranium for both nerves.

As regards the nature of the lesion, I concluded that it was syphilitic for the following reasons:—

1st. The age of the patient—thirty-two—a time of life when syphilitic nerve lesions are common.

2nd. Paralysis of the third and sixth nerves are commonly due to syphilis.

3rd. The pain in the head was nocturnal.

4th. He denied having ever had venereal disease, but when I pointed out to him a scar on the penis at the junction of the glans and prepuce, and the cicatrix of a bubo in the left groin, he admitted that he had contracted syphilis ten years before.

5th. The small ulcer on the left side of the upper lip had an ash-grey appearance, and otherwise had a suspicious appearance.

6th. The greater part of the outer side of the left leg was

covered with cicatrices which were coppery at parts, especially at the edges. These were the scars of ulcers which were healed up in 1880 with the aid of iodide of potassium.

Treatment was commenced on *September 1st* with 5 grains of potassio-tartrate of iron and 5 grains of iodide of potassium thrice daily: the latter was increased to 10 grains on October 20th, and by the *3rd of November* only slight improvement was observed. Accordingly at that date mercurial ointment was substituted, of which a drachm was to be rubbed in daily.

I regret that the only note in the Journal taken after this date was on the day of his dismissal, on January 19th, 1883, from which I find that he had almost completely recovered.

In the next group of cases, *headache* was a prominent symptom.

5. *Headache—Mercury versus Iodide of Potassium.*—D. M., aet. 38, a blacksmith, was admitted to Ward II. of the Western Infirmary on 10th February, 1885, complaining chiefly of severe pain in the forehead and upper part of the head, which had been present for about four months. The family history was good, and, with exceptions to be narrated further on, he had previously enjoyed good health.

About four months before I saw him he was suddenly seized, while sitting at the fire, with a violent pain in the forehead, above the left eye. It lasted several hours, and he was then free of it for about a fortnight. After that he had repeated attacks, and noticed that the intervals between them gradually became shorter, and from the beginning of the year the pain had been almost constantly present, although with occasional paroxysmal exacerbations. The pain was often very intense,

so much so as frequently to induce delirium, and altogether to prevent sleep, although it was not worse at night. About the beginning of January his eyesight became somewhat impaired, so that he was unable to read so well as he used to do. On looking at anything steadily for a time his vision became dim, as if a "scum" was before his eyes, and sometimes there was a feeling of pressure in them, especially on attempting to read. The smallest type he could read on admission was a double small pica, whilst, before the illness, he said he could read the ordinary type of a newspaper, which is only half the size of the above. Dr. Thos. Reid's report upon the eye was as follows:—"Aided by 8 inch convex, he is able to see the smallest print at twelve inches with either eye. The area of the field of vision is complete in both eyes, there being no defects to be found in the lateral parts of the field. The power of distinguishing colour is perfect, with the exception of deep purple, which he mistakes for black. Ophthalmoscopic examination:—Hypermetropia of one twelfth found (left pupil only dilated). The left optic nerve seems rather prominent, tissue consolidated, and slight signs of effusion along the course of the vessels as they leave the optic disc; but no distinct evidence of there having been choked disc or engorged optic nerve, the disturbance not being more than is sometimes found in a high degree of hypermetropia. The defect of vision which he complains of is to be referred to deficient power of accommodation rather than to an actual loss of accommodation. This deficient power of accommodation is sometimes seen to follow a shock to the nervous system."

The eyeballs were slightly prominent, especially the right, but this condition, he said, had been present from childhood. There was no paralysis of the muscles of the face, save a slight drooping of the left upper lid. On tapping all over the head two spots were found (one over the outer angle of each eye)

which were distinctly tender. For three months before admission he had lost flesh very much, to the extent, he said, of about three stones.

The diagnosis of intra-cranial syphilis was made on the following grounds :—

1st. Twelve years before, he suffered from an attack of gonorrhœa, which lasted three or four months. There was a rounded and depressed cicatrix on the glans penis, a little above and to the left of the fraenum, and the foreskin was adherent to the glans at the sulcus. This he attributed to a burn from a piece of live coal, but, from the position of the scar, this seemed a very unlikely cause.

2nd. About eight years before admission he had what he called rheumatism, describing it as "constant pains in the bones and joints," which were aggravated by movement, and markedly worse at night.

3rd. Three years before he had a painful affection of the throat, which lasted for about a year.

4th. He professed never to have had any eruption on the skin ; but a few scars, attributed by him to the application of croton oil, were observed on the legs, and one of these, a little above the outer malleolus, was distinctly coppery in tint.

Before his admission into the Infirmary he had been under the care of half a dozen medical men in succession, and appeared to have been treated, for the most part, by means of quinine and other anti-neuralgic remedies. His last medical adviser, however, evidently suspected the syphilitic nature of his symptoms, and gave him iodide of potassium. He took it at first in 10-grain doses, three times a day ; but, for a week before I saw him, the dose had been increased to 30 grains. This failed to relieve him in the slightest degree. Accordingly, on the 12th of February, he was ordered to rub

into the skin daily a drachm of Shoemaker's *mercurous* oleate ointment, while 30 grains of paraldehyde were given at bedtime.

In a few days the pain had completely disappeared. The ointment was, however, steadily persevered with, and on the 27th April, when he was last seen, he remained entirely free of his inveterate enemy.

6. *Right Hemicrania—Paralysis of the Sixth Nerve and of the First Division of the Fifth.*—A married woman, 36 years of age, came to me on 20th March, 1885, complaining of intense pain in the head and of indistinctness of vision with the right eye. Her family history was good, and so was her personal history, with one exception (to be noted later on), till about twelve weeks before, when she was awakened about midnight by an intense pain all over the crown of the head. She got out of bed and vomited, and on this occasion the vomiting recurred twice, while the attack lasted for about twelve hours. For three weeks after this she was able to continue her work, although she was never entirely free from suffering for more than two or three hours at a time, the paroxysms of pain continuing from one to three hours, and being often accompanied by vomiting. At the end of this time the pain became so commanding that she was obliged to give up work and to take to her bed. For three weeks before she was admitted into the Hospital the pain was confined to the right side of the head; it was described as being of a stabbing character, and accompanied by throbbing. A few weeks after the onset of her illness, she began to complain of indistinctness of vision on the right side, and it was observed that, on that side, she had an internal squint. The eyeball itself was extremely painful, at times feeling very hot, at times as if a piece of ice were placed upon it. Her memory had failed somewhat, and she

was thin, and looked older than her years. There was found to be general tenderness of the posterior two thirds of the right side of the head, while there were two specially tender spots, one about three inches above the right eye, and another about three inches behind that point. But while the part mentioned was hyperaesthetic, there was complete anaesthesia of the right side of the brow, and on pressing upon the right eye she said that there was scarcely any feeling in it—that is to say, there was paralysis of the ophthalmic nerve (first division of the fifth). The right sixth nerve was also completely paralyzed, as she was quite unable to move the eye in an outward direction. "The dimness of vision," Dr. Thos. Reid wrote, "of which the patient complains is due to the internal squint, on account of which rays of light are not thrown properly on to the macula lutea. Colour perception is perfect, or very nearly so, with both eyes. The area of the field of vision is complete. The ophthalmoscope reveals pinkness of the optic nerve, with engorgement of the optic vessels: this might be caused by a very slight degree of pressure. It is present in both eyes. The right pupil is unduly contracted, but responds to the action of light, and also for accommodation. There is present secondary deviation (or the convergence) of the healthy eye, which shows that this case comes under the category of peripheral paralysis, meaning by that term that there is a lesion of the sixth nerve at some part of its course, not only up to its apparent origin, but to its nucleus." There was chronic catarrh of the right middle ear, with decided deafness, as the patient could only hear a watch when close to the ear, but there was no reason to suspect that it was connected with the above symptoms, the deafness being of old standing. There was no paralysis of the limbs.

As regards the seat of the lesion, it must have been at the base of the brain on the right side, probably in the vicinity of

the Pons Varolii; and it was suspected to be syphilitic for the following reasons:—

1st. The pain in the head was distinctly nocturnal in character.

2nd. The sixth nerve is very liable to suffer in syphilitic cases.

3rd. There was dirty earthy pallor of the skin, and the inguinal glands were enlarged.

4th. She had been married for eight years, and about twelve months after her marriage she had a miscarriage at the fourth month; two years thereafter she had a child born at full time which survived and was apparently healthy (perhaps in the interval she had anti-syphilitic treatment?); then she had two miscarriages at the third month; and, lastly, three years before I saw her, she had an apparently healthy child. This family history is not conclusive, but it is rather suggestive, though not typical, of a syphilitic taint.

On *March 23rd* she commenced Shoemaker's mercurous oleate ointment by inunction (3i. daily).

On *April 3rd* the following note was taken:—"Patient is much improved in most respects. The pain in the head is less, and the tenderness is almost gone except at the originally most tender spot in front. Sensation in the region of the ophthalmic nerve is returning, so that she can now feel moderate friction with the finger, although she can still allow the eyeball to be touched without wincing. The pupil remains contracted, but the internal squint is rather less."

She left the Infirmary by her own desire on the 17th, but the result of the treatment was sufficient to verify the syphilitic nature of the complaint.

7. *Left Hemicrania—Treated with Perchloride of Mercury subcutaneously.*—Mrs. D., aet. 38, charwoman, was admitted into Ward VII. of the Western Infirmary on January 2nd, 1886,

suffering from severe, constant pain, implicating the whole of the left side of the head and also the left eye and ear, and the left side of the nose and jaw, with some stiffness of the lower jaw. The pain was of five weeks' duration, and she could give no reason for its occurrence.

I came to the conclusion that it was syphilitic in character, for these reasons :—

1st. The pain was markedly nocturnal in character, and prevented sleep.

2nd. The skin had a dirty earthy tint.

3rd. The inguinal glands were enlarged.

4th. Two years before admission the hair fell out in handfuls.

5th. Three years before I saw her she had a miscarriage at the seventh month, and two years thereafter a still-born child, without obvious cause to account for it.

Treatment.—On *5th January* subcutaneous injections of the perchloride of mercury were commenced ; a solution of 4 grains to the ounce of distilled water being used, of which mxv. (= gr. $\frac{1}{8}$), were injected daily.

On *January 19th* she would not remain longer in the Infirmary as all her symptoms had completely disappeared—the amount of perchloride injected was only gr. $1\frac{6}{8}$.

In the following cases—along with other symptoms—*epileptiform seizures* were present :—

8. *Convulsive seizures, Paresis, and Hemicrania—all on the right side of the body.*—Jacob B., aet. 24, a tailor, was admitted into the Western Infirmary on February 1st, 1886, complaining of weakness of the right side of the body, of fits limited to that

side, and of right hemicrania of sixth months' duration. He stated that, at that time, he was terribly frightened by a dog pouncing upon him in the dark. That night he was very restless, and felt "quite silly." Next morning, while in the workshop, he experienced a buzzing noise in his right ear, flashes of light before his eyes, and a peculiar sensation beginning in the head and running down the right side of the body; this was immediately followed by spasm of the right arm and leg, and he fell to the floor insensible. When he regained consciousness he complained of severe headache, and of weakness of the right side of the body, and had to give up work. These fits occurred about twice a week.

On the evening after admission (*February 2nd*) he told the nurse that he felt a fit coming on, and he had no sooner said so than he fell on the bed unconscious. The right side of the body was rigidly contracted, the head was drawn to the right, the arm was supinated and semiflexed, the fingers were firmly closed, the legs were drawn up, and the teeth clenched. This lasted for a few seconds; then the teeth chattered, and the arm quivered violently, after which the whole body became relaxed, and he breathed heavily. He had four such paroxysms in a couple of minutes, and then fell into a heavy sleep. He was quite unconscious of these phenomena; all he recollected was the premonitory sensation, and, when he awoke, he felt exhausted, and had a very severe headache.

On *February 7th* he had an attack which was almost identical with that just described, but it was more severe, so much so that he fell out of bed.

On examination it was found that there was very marked paresis of the right arm and leg: he had a sensation of "pins and needles" in them, and anaesthesia was complete over the whole side, he being unable to feel the prick of a needle until the middle line was crossed. The right side of the face and

head were equally affected. The right arm and leg trembled on exertion.

The following were the grounds upon which the diagnosis of cerebral syphilis was made :—

1st. There was a distinct scar on the penis, and large, hard, rolling glands were detected in the groins.

2nd. The skin had a very dusky tint, and was studded over with little cicatrices which were white in the centre, and dark at the edges.

3rd. At the right elbow a scar about half an inch in diameter was found which had distinctly coppery edges.

4th. The hemicrania was markedly nocturnal.

Treatment.—On *February 8th*, perchloride of mercury, gr. $\frac{1}{8}$, was administered subcutaneously, and this was repeated daily until the 13th, when he left the Hospital without permission. Although he had only had three fourths of a grain, he could then walk fairly well, and could move the arm and leg with great freedom. The hemicrania was nearly gone, and there had been no return of the fits.

9. *Epileptiform seizures, Giddiness, Frontal headache, and Left hemiplegia.*—A labourer, forty-two years age, came under observation on February 18th, 1874. His father was an inmate of a lunatic asylum, and one sister died in childhood: otherwise the family history was good. He had always been a steady man, but his diet had often been poor, especially latterly. On two occasions he "lost his sight" he said—first when he was about sixteen years of age, and again about a year thereafter, and since then his sight had been indifferent. Four years before admission, while carrying a twelve-foot plank upon his shoulder, he suddenly felt his head drawn to the right side, and his left arm and leg, as well as his head, began to shake. He retained consciousness, however, and sat down immediately

but the fit did not pass off for about an hour and a half, and it left a feeling of numbness in the arm and leg. On the following day he had two similar paroxysms which were preceded by giddiness of a minute's duration: these continued for about a quarter of an hour, and were succeeded by violent pain in the forehead, which never entirely left him. He had a great many fits in all, following one another at irregular intervals—sometimes being absent for days, sometimes for months, while one day he had as many as nine paroxysms. The last occurred about four months before admission. They were associated with a gradually increasing weakness in the muscles of the left side of the face, left arm, and leg. The pain in the head was often accompanied by eructations of sour fluid, and occasionally by vomiting, but without any preceding nausea: the vomiting was easy, and had no connection with the taking of food.

On examination it was found that the palsy of the left arm and leg was very partial, though quite distinct, but the paralysis of the left side of the face was very marked.

The lesion was probably cortical, and was supposed to be syphilitic for the following reasons:—

1st. The pain in the head was decidedly worst at night, particularly about 11 P.M., and prevented sleep.

2nd. Upon the left tibia, a little below the knee joint, a painful node was discovered.

3rd. The skin of the whole of the left side of the neck posteriorly was marked by cicatrices, the result of an "income" two years before, the edges of which were in segments of circles.

Treatment.—Before I saw him the head had been shaved and blisters applied, but without relief. On *March 25th* iodide of potassium, 10 grains thrice daily, was prescribed. Within five or six days of its commencement he felt a good deal

better, and was able to go about the wards: his appetite returned, the bowels became regular, and the pain in the head entirely disappeared. By the 20*th April* the paresis of the arm and leg had completely disappeared, although the muscles of the left side of the face had not completely recovered. He has not since been seen.

10. *Epileptiform Attacks, Hemicrania, and Hemiplegia—all right sided.*—A man, aged 37, a clerk by occupation, was admitted into the Western Infirmary on March 10th, 1885. His family history was good, but he was always considered a delicate child, and, after leaving school, while employed in a coal pit, he contracted inflammation of the right lung. Nine years before admission he became a clerk, but his employment did not involve very close confinement.

About six months before I saw him, on rising from a sofa, he felt a curious sensation in his head, his face was drawn to the left side, and his right arm was twisted up behind him. He was able, however, to walk to the door and call for help, but immediately thereafter he fell to the ground unconscious His friends informed him that the fit continued for about ten minutes, during which time he frothed at the mouth, the face was drawn to the left side, and the right side of the body was convulsed. On regaining consciousness he felt exhausted, and was inclined to sleep. Five weeks after this he had a second fit, which was not so severe, for, although he fell suddenly and was convulsed on the right side, he seems to have retained consciousness throughout the paroxysm. After this he had attacks daily until three months before admission, when, under the influence of treatment of some kind, they ceased for good. Before each fit he felt giddy for some time, and, immediately preceding it, he had a curious and indescribable sensation in the right palm. Nearly from the first there was constant trembling

of the right hand, and for three or four months the right arm and leg had been becoming weak. Almost from the first, too, he was troubled with attacks of pain limited to the right side of the head, which soon became very intense. For about three months there had been pain in the right hip-joint, which, however, was not limited to the joint, but extended a little way up the side. For some, weeks, too, he had been troubled at times with giddiness and with dimness of vision, limited, he thought, to the right side of the right eye. Dr. Thos. Reid reported as follows with regard to the eyes:—"With the right eye he cannot see an object which is placed the least to the outside of a line drawn directly through the middle line of the eye. With the left eye the defect is discovered on bringing an object towards the inner side, but the defect is not so great as with the right. . . . The ophthalmoscope gives negative results."

The early occurrence of fits in which the right hand and arm were specially engaged, as well as the continued paresis of the arm and leg, pointed to a lesion in the left lateral aspect of the cerebrum, but latterly there was also evidence of a lesion at the base implicating the left optic nerve (behind the commissure), which sends the greater number of its fibres to the inner part of the right eye—the more affected—and the lesser number to the outer part of the left.

I concluded that this lesion was syphilitic for the following reasons:—

1st. A distinct scar was detected on the upper surface of the corona of the penis, and which he ultimately admitted to be the result of what he was told was a soft chancre four years before.

2nd. Some months after this he had a sore throat and numerous ulcers on the upper surface of the tongue. His hair, too, fell out.

3rd. There was some enlargement of the glands in the inguinal regions, and on the inner side of the arms, just above the elbows.

Treatment consisted of the inunction of mercurous oleate ointment (3i. daily).

On *March 30th*, when the treatment was commenced, the following symptoms were present:—Right hemicrania; loss of memory and frequent giddiness; hemiopia; paresis of right leg and arm (dynamometer—right, 75; left, 95 pounds); tremor of the right hand and pain in the right hip, extending up the side.

On *May 15th* the following note was taken:—"Patient is now in a very different state. The hemicrania has been gone for fully a fortnight; the giddiness is gone and the memory perfect; the paresis of the leg and arm is imperceptible (dynamometer—right, 105; left, 112 pounds); and the pain in the hip and side is no longer felt. There is still, however, the slightest tremor of the hand; and, while the vision of the left eye is quite restored, and that of the right decidedly improved, he is still unable to see objects placed much to the outside of the middle line with the right eye.

11. *Convulsions and Paresis of the Right Side.*—A sailor, aet. 62, married, was admitted on 29th May, 1878. He knew nothing of his family history, but he was married, and of his three children only one survived. At the age of 32, while off the coast of America, he had numerous attacks of ague, but these had not recurred for many years.

On December 10th, 1877, while doing duty as mate on board a vessel at Leghorn, he was seized with convulsions. He was in the act of going to bed when he experienced a "sleeping, prickling" sensation in the right foot, which quickly extended up the leg, trunk, and arm of that side, till it reached

his head, when he became insensible. He was told that he then became convulsed, the convulsive movements being so violent that he had to be restrained. For a few hours after the fit he felt very drowsy, and on recovering he found that the whole of his right side was very powerless.

From that time he had a return of the fits every eight or ten days (depending, he thought, on the severity of the weather), until March, 1878, when he derived much temporary benefit from treatment during a residence for a couple of months in the Royal Infirmary. Before I saw him, however, the fits had returned.

The following is an account of one of these seen by my assistant, Dr. Macrury;—"*June 19th*: This morning, at 7.30 A.M., while stepping into bed, after having had it made, he uttered a loud cry, and was about to fall when one of the patients ran to support him. He was put to bed and remained there fully half an hour, perfectly intelligent, but quite unable to utter a word. About 8 A.M., *i.e.* about half an hour after he cried out, convulsions set in implicating the whole body, but it was noticed that there was a tendency for it to be drawn towards the right side. This was particularly well marked in the face which was much contorted. The colour of the face was at first natural, but it soon became livid. The eyeballs rolled about to begin with, but were soon turned upwards and fixed, and they were all along sensitive to the touch. There was slight foaming at the mouth and continual grinding of the teeth. The pulse, which at first was quiet, soon became rapid, though it continued regular, and the respiration was stertorous. The paroxysm lasted for about five minutes and gradually ceased, when his appearance became natural. He lay quietly, as if asleep, for about an hour, and then he vomited. On being questioned he answered readily, but in a confused manner. It was the afternoon before he was quite intelligent, and then he

said that he remembered nothing about the fit." On examination it was found that there was partial paralysis on the right side, especially in the arm (dynamometer—right hand, 50 pounds; left, 100). The muscles responded normally to electricity, and there was no loss of sensation, but there was a good deal of tremor of the limbs. He was easily moved to tears.

I came to the conclusion that the lesion, which was probably a cortical one on the left side, was of a syphilitic nature, for the following reasons:—

1st. There was no other apparent cause—no sign of embolism, kidney disease, degeneration of vessels, etc.

2nd. He had gonorrhœa several times, and about eight years before admission he had an eruption on his lip, which, however, he attributed to exposure for six hours in the water, after having been capsized out of a boat. Such accidents are very apt to call out manifestations in those tainted with syphilis, and their nature is apt to be overlooked.

3rd. On the lower third of the left leg a group of scars was detected with slightly circular edges.

4th. The remains of nodes were found on the shins, and there was a history of *nocturnal* pains there.

5th. There was some enlargement of the inguinal glands.

6th. His complexion was sallow.

Treatment.—On *June 1st* iodide of potassium was prescribed.

On *July 24th* the following note was taken:—"This patient has had no convulsion since June 19th, and the paralysis and trembling of the limbs have completely disappeared. He is about to leave the Hospital."

In the following cases *Hemiplegia* was the sole, or the prominent, feature:—

12. *Hemiplegia with Late Rigidity.*—J. S., a sailor, aet. 30, was admitted into the Western Infirmary, on February 9th, 1876, suffering from hemiplegia, and difficulty of articulation of sixteen months' duration.

His family history, and, with one exception referred to later on, his previous personal history were satisfactory. About seventeen months before I saw him the ship in which he sailed from St. John's in mid-winter, became waterlogged, and the crew were rescued by a passing steamer, after being exposed to cold and damp for two months, everything on board ship, including the bedding, being wet. One morning, about a month after this, while at his work at Dumbarton, but not exerting himself excessively, a pricking sensation was experienced all over the right side of his body, which was immediately followed by speechlessness, and loss of power of that side, so that he fell to the ground, although he did not lose consciousness. About a month thereafter some improvement in these symptoms was manifest, and eight months after their occurrence he benefited considerably under treatment, including galvanism, in the Edinburgh Royal Infirmary. After leaving that institution, however, he became much worse, and stiffness and rigidity were added to his previous symptoms.

On examination it was found that the hemiplegia was pronounced, and the rigidity was well marked, especially in the arm and hand, the forearm being flexed and the fingers bent like the claws of a bird. Sensation was hardly at all interfered with, there being only slight defect in the sense of pain. The electrical reactions were normal. He had some difficulty of articulation, but no aphasia.

The lesion was suspected to be syphilitic for the following reasons:—

1st. His age—only thirty years.

2nd. The absence of any other obvious cause for the symptoms.

3rd. Three or four years before he came to me he contracted a gonorrhœa, accompanied by a sore on the glans penis which soon healed up. Since that time he had been frequently troubled with sore throat, and with rheumatism of the right shoulder which was markedly nocturnal in character.

4th. A large scar was discovered on the side of the penis, where the sore had been; the skin had a dirty, muddy look, and the inguinal and posterior cervical glands were enlarged.

Treatment.—This consisted in rubbing into the skin daily a drachm of mercurial ointment, along with Faradization. He was dismissed on April 11th considerably improved, but far from well. This is not to be surprised at seeing that there was evidence of secondary descending sclerosis of the cord.

13. *Left Hemiplegia—Slight Paresis of Right Side—Headache. Mixed Treatment.*—Mrs. S., aet. 27, housewife, was admitted under my care into the Western Infirmary, on April 7th, 1885, complaining of very severe headache, of paralysis of the left side, and of slight paresis of the right. She enjoyed good health until two years before admission when, after the birth of her last child, she began to complain of weakness in "the small of the back," and from that time she was never able to leave her bed for a whole day. Fourteen weeks before admission she vomited a large quantity of dark blood, and this recurred five weeks thereafter. This was unaccompanied by cough, but pain at the bottom of the sternum was complained of (ulceration of stomach?). The pain in the head above referred to, and which was very severe, set in about nineteen weeks before I saw her. About a month before she was admitted, while lying in bed, she was seized with trembling of the whole body, and immediately thereafter she noticed that she had lost the power of the left side, and three days before she came in she experienced a slight loss of power in the right side.

On examination it was found that she had complete paralysis of the left arm and partial paralysis of that side of the face. There was also anaesthesia of the whole of that side, but its extent could not be accurately ascertained, as her mental state was very defective, a condition which set in with the paralytic phenomena. She kept the right eye almost constantly closed, and the tongue, when protruded, deviated to the paralyzed side. There was slight paresis of the right side.

Evidences of Syphilis.—1st. The pain in the head was markedly nocturnal.

2nd. She had had five miscarriages since the birth of her last child two years before, at the sixth to the eighth week of pregnancy.

Treatment.—On *April 8th* she began to take, three times a day, a mixture, each dose containing a sixteenth of a grain of perchloride of mercury and 10 grains of the iodide of potassium, with the result that the headache and anaesthesia rapidly disappeared, the mental condition was restored, and the power of motion of the left side gradually increased, especially in the leg.

On *April 28th*, one drachm of Shoemaker's *mercurous* oleate ointment was rubbed into the inside of the thighs daily.

On *July 14th*, she received a mixture containing tincture of nux vomica, and citrate of iron and quinine, and daily friction of the arm and leg was resorted to.

On *January 5th*, 1886, when she was dismissed, the power of the left leg was almost completely restored, but the arm was still a little weak.

14. *Hemiplegia with Anaesthesia and Hemicrania.*—A man, aet. 29, a grinder by occupation, was admitted into Ward IX. of the Western Infirmary, on March 30th, 1882. For six months prior to this time he had been troubled with severe and steadily increasing headache, which was limited to

the left side. Four days before he came in he was seized, quite suddenly, with paralysis of the left arm and leg, so that he was unable to walk, and the day following it was observed that he could not converse, answering "Eh!" to every question that was put to him. The day before admission, however, this symptom had in great measure disappeared, although, when he came into the Hospital he was in a somnolent condition, had a dazed and stupid look, and answered questions in few words or sometimes not at all, while the information which he vouchsafed was afterwards found to be quite erroneous. For a day or two, also, before I saw him, the paralysis which was quite complete at first (with the exception of the side of the face which, as usual, was only partially affected), became much less pronounced, so that he could move the arm a little, and the leg with considerable freedom.

On the 18*th of April*, nine days after he came under observation, he became insensible, the loss of consciousness lasting for about a quarter of an hour, during which time there were convulsive movements of the palsied arm and leg. On recovering consciousness it was found that the paralysis was greatly aggravated, he being quite unable to move the affected parts. The sensation, too, on this side was now found to be rather defective as regards touch, pain, and temperature. Thus, when slightly pricked with a needle, he thought that the hand was applied, and when hot and cold sponges were used he could discriminate cold, but not heat.

The symptoms present in this case pointed to a gross lesion in the right side of the brain, involving the motor, and, to a less extent the sensory tract, and as regards its nature, the following considerations led me to suspect that it was of a syphilitic nature :—

1st. The age of the patient, and the absence of any other apparent cause for the symptoms.

2nd. The hemicrania was markedly nocturnal in character.

3rd. The skin had an unhealthy, dirty, earthy tint.

4th. The inguinal glands, and those on the inner side of the upper arms near the elbows, were enlarged.

5th. A large white scar about the size of a sixpence, with dark edges, was discovered near the root of the penis which, on inquiry, was admitted to have resulted from a venereal sore five years before.

Treatment consisted in rubbing a drachm of strong mercurial ointment into the skin daily. It was commenced on *April 2nd*, and was stopped on *June 2nd*, but, from the *10th* to the *20th April*, it was omitted through inadvertence.

On *June 23rd*, when he left the Hospital, he was a very different man. The intelligence which was at first so defective, was perfect in every respect, the nocturnal hemicrania had long disappeared, the paralysis of the arm was slight, as he could move it freely in all directions, and the dynamometer, on which at first the left hand made no impression, registered 35 pounds. The palsy of the leg was also slight, although rather more pronounced than that of the arm, and he walked a little lame and rather stiffly. This last symptom, taken along with the existence of some tremor when the limb was manipulated, and exaggeration of the patellar tendon reflex (ankle clonus was not present), rendered it probable that secondary sclerosis of the left pyramidal tract of the cord had set in. As this lesion, though secondary to the lesion of the brain, is of a non-syphilitic character, it could not be influenced by anti-syphilitic treatment.

15. *Hemiplegia of the Right Side, Anaesthesia of the Left, and Unilateral Sweating of that Side of the Face.*—Jas. K., aet. 49, was admitted into Bed 14 of Ward II. of the Western Infirmary, on January 11th, 1882. He seems to have

enjoyed good health until December, 1867, when he had a severe attack of rheumatic fever of seven weeks' duration, but from which he made a good recovery.

He remained well for about eight years, and then (1875) he began to suffer from giddiness, with a sense of fulness in the neck, which was accompanied by "twitching and a clicking sound" at the nape—especially on stooping, raising heavy weights, or otherwise exerting himself. This continued until the middle of the following year (1876), when, one evening when returning from work and ascending a stair, he suddenly experienced "a feeling of weakness"; and, supposing that it would soon pass off, he sat down, but, on attempting to rise again, he was unable to do so. He thinks that he was unconscious, or nearly so, for a little; and, after being carried into his house, it was found that he had paralysis of both arms and legs, more particularly of the right arm and leg. The right side of the face, too, was paralyzed, though not completely. For a short time afterwards he sometimes saw things double. He soon (in some weeks) recovered the power of the left arm and leg, and the palsy in the right side improved, but never disappeared.

In the winter of 1880, he had a suppurative inflammation, with ulceration of the skin on the inner side of the left knee, which was followed by permanent cicatrices.

About the beginning of December, 1881, after a wetting, and while straining at stool, he experienced a chilly feeling all over the body, which was immediately followed by an increase of the paralysis of the right side and by pains in the shoulder and knee joints.

After the first seizure well-marked rigidity in the right arm and leg, and to a less extent in the left knee, gradually supervened. After a time this slowly diminished, but became more pronounced after the second attack of paralysis. Ever since

the first attack he experienced some numbness and defect of sensation on the left side of the body, which was also improving slowly until the second attack, when it became more decided. For a considerable time, too (he could not say how long, but for three years at all events), he had a tendency to sweating on the left side of the face, which was sometimes very marked, and accompanied by flushing and venous distension. The family history was in every way satisfactory.

On examining this patient, it was found that there was partial paralysis of the right side of the body and face. The dynamometer registered 35 pounds with the right hand and 140 with the left. He could not close the right eye firmly when the left was kept open, but could do so quite well when they were closed simultaneously. There was well-marked rigidity of the arm and leg, with exaggerated knee jerk, but ankle-clonus could not be elicited. On the left side there was slight rigidity of the knee and slight exaggeration of the patellar tendon reflex, but there was hardly any observable paralysis on that side. But, on testing the sensation on this side, it was found to be very defective as regards touch, pain, and temperature, the anaesthesia diminishing, however, from below upwards, although quite distinct on the face. The side of the tongue was not involved, nor was there any trace of colour blindness. The only other feature worthy of note was unilateral sweating on the left side of the face. This was not constant, but was only observed when he exerted himself or when he was excited: at these times the parts were distinctly congested and the veins prominent.

As regards *the seat of the disease*, the view expressed at a meeting of the Glasgow Pathological and Clinical Society, where the patient was shown, was that a single lesion at the base of the brain, in the pons, might account for the symptoms.

With regard to the sweating, the pons varolii had a good deal to do in presiding over vaso-motor action, although, from the history of pain at the nape of the neck, there might quite well have been some implication of the cervical sympathetic (Dr. Alexander Robertson).

As regards *the nature of the disease*, the attack of rheumatic ever naturally led to a suspicion of embolism, the result of rheumatic endocarditis ; but there was no evidence whatever of valvular mischief, nor were there any symptoms of embolism of other organs, spleen, kidneys, etc. On the other hand, the syphilitic nature of the trouble was suspected for the following reasons :—

1st. Twenty-four years ago he had a single hard sore on the penis close to the fraenum, the cicatrix of which was quite distinct. It was followed, he told us, by well-marked constitutional symptoms.

2nd. The skin had a dirty, earthy, muddy tint.

3rd. The inguinal glands, and those just above the elbow on the inner side of the arm, were enlarged.

4th. A good many scars were visible on various parts of the trunk, and more particularly on the inner side of the left knee, which were more or less rounded, and, in the latter situation, their edges were dark in tint.

The treatment consisted of mercurial inunction (℥i. of strong mercurial ointment being rubbed in daily). This was commenced upon *January 29th*, 1882, and was continued for ten days, when it was suspended owing to the gums being slightly affected. On *February 10th*, three days after the mercurial treatment was stopped, an examination of the patient was made. He told us that the fulness and discomfort in the head, of which he had complained, had entirely disappeared, and that altogether he felt quite a different man. The unilateral sweating, though still present on excitement, was a

good deal less pronounced; the anaesthesia, tested as before, was found to be entirely gone; and the paralysis was very greatly improved, as he had much more power in the leg, and could walk a great deal better; and the dynamometer now registered 70 pounds with the right hand (instead of 35 before the treatment was commenced). And, what is very remarkable—and the explanation of which it is not easy to make out—is, that there was a very considerable diminution in the rigidity, although the patellar tendon reflexes were still exaggerated. He was ordered to continue the treatment, but he insisted upon leaving the Hospital, and I have not since heard of him.

16. *Left Anaesthesia and Paresis, Difficulty of Articulation, and Paralysis of the Right Third and Sixth Nerves.*—Wm. S., aet. 30, cooper, came into the Western Infirmary on August 10th, 1886.

Three days before admission (August 7th), when at Rothesay on a holiday, he retired to bed in his usual health. Next morning he was found by his landlady in a semi-conscious state. It was some time before he completely recovered his senses, and then it was found that he was partially paralyzed on the left side, and that he had considerable difficulty of articulation. On returning from Rothesay on the day of his admission, and while laughing heartily at what a fellow-passenger had been telling him he became suddenly unconscious, and remained so for some time. On coming to himself he found himself lying upon his back, surrounded by some of the passengers.

On entering the Infirmary he complained of severe pain in the right temporal and occipital regions, and of a "prickling" sensation in the left leg, and, to a less extent, in the arm. There was partial paralysis of the left side, and anaesthesia, so

complete that he could not feel the prick of a needle or distinguish heat from cold.

On the right side, too, there was complete paralysis of the third nerve, and partial paralysis of the sixth. Vision was double to the right of the middle line. His speech was much affected owing to paralysis of the muscles of articulation. He was also deaf, although this was probably a condition of old standing. Dr. Barr examined the ears, and the following is his report:—"In the right ear there is a cicatrix with adhesions in the posterior part of the membrane (due to old suppurative disease from a traumatic cause). On the left side there is some opacity of the membrane. . . . On both sides the nervous structures are the parts essentially affected."

Some time after his admission the following new symptoms gradually supervened:—Marked trembling of the left leg on exertion; ankle clonus pronounced; knee jerk markedly exaggerated; tendon reflexes of left arm greatly increased. On wakening at night the patient often found his left hand firmly clenched.

These symptoms pointed to a gross lesion implicating the right crus cerebri, with consecutive descending degeneration of the cord, and they were believed to have a syphilitic basis for the following reasons:—

1st. The age of the patient—he was only thirty years old.

2nd. The absence of evidence of any other cause.

3rd. The pain in the head was markedly nocturnal.

4th. Syphilis is the most common cause of paralysis of the third and sixth nerves.

5th. He at first denied having ever had any form of venereal disease, but a very distinct scar was found upon the glans penis, which he asserted was the result of a burn from a red-hot iron, but afterwards admitted to be due to a venereal sore.

Treatment.—Shoemaker's *mercurous* oleate ointment to the extent of a drachm, was rubbed into the skin daily, but with no good effect, so that ordinary mercurial ointment was substituted for three weeks before his dismissal, which was necessitated by bad conduct. By this time the anaesthesia had disappeared, the pain in the head was much relieved, and he could walk better.

In the following case the paresis was general:—

17. *General Paresis, Headache, and Giddiness.*—John M., aet. 45, an old soldier, was admitted into the Western Infirmary on October 16th, 1885, complaining of general weakness and loss of power of three weeks' duration, combined with headache and giddiness, and pain over the left shin.

At that time, without apparent cause, he began to feel weak and was easily fatigued: the weakness gradually increased until he could only walk with support, and had at last to take to his bed. He felt giddy, especially if he looked upwards, and very severe headache, and pain over the left shin set in. His speech also was affected, in so far as it was slow and hesitating, and he had great difficulty in pronouncing words. There was no defect of sensation, the paralysis was generalized but incomplete, and the reflexes were normal, with the exception of the knee jerks which were slightly exaggerated.

I suspected the syphilitic basis of these symptoms for the following reasons:—

1st. No other probable cause could be made out.

2nd. At the age of twenty he had a single indurated sore, followed by enlargement of the inguinal glands, and a coppery eruption all over the body.

3rd. There was a small cicatrix at the base of the glans penis, and the groin glands were distinctly enlarged.

4th. The skin had a dirty, sallow tint, and numerous small

circular cicatrices were discovered over the upper part of the body.

5th. There was well-marked thickening over the left tibia, and the shin pain and headache were markedly nocturnal in character.

Treatment consisted of scruple doses of iodide of potassium thrice daily.

Within a week of the commencement of this medicine the headache and shin pain had entirely disappeared, the paresis rapidly diminished, and on the 20th of November (after a month's treatment), he left the Infirmary feeling quite well in every respect.

The following case is a very remarkable one:—

18. *Paraplegia, and Symptoms resembling those of Locomotor Ataxy.*—Mrs. F., aet. 39, was admitted into the Western Infirmary on 5th December, 1887.

Her father died of some chest affection at the age of 67, and her mother of phthisis at 50. She is one of a family of ten, all of whom are dead with the exception of two, but the causes of death of only two can be ascertained—viz., phthisis. There is no history of any tendency to nervous affections in the family.

She has always been temperate in her habits, and, with one exception, to be referred to later on, enjoyed uniform good health until two years before admission. At that time, after having suffered for three months from persistent, painless diarrhœa, she began to complain of numbness and defect of sensation in the left leg, for which she was treated in the City Hospital for a period of five months without material benefit. During her stay there she had retention of urine on several occasions, but was relieved, without the use of the catheter, by the application of fomentations. Five months before I saw

her the right leg became similarly affected, coincident with which she lost desire for sexual intercourse, and began to experience a feeling as if a cord was tied tightly round her waist (girdle sensation). Since the commencement of her illness her bowels, which were formerly very regular, became very costive, but latterly, on several occasions, she has had diarrhœa, at which times she was quite unable to retain her motions.

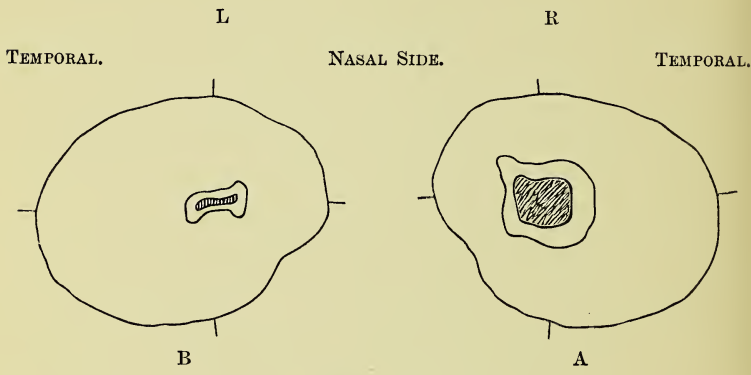
Within the last three months she has had frequent attacks, lasting for a day or two, of lightning pains: these usually followed the course of the sciatic nerves, but sometimes, also, shot down the arms. She now complains of pain, and of tenderness on pressure in the spine, over the 4th, 5th, and 6th dorsal, and over the 12th dorsal and 1st lumbar vertebrae. For at least a year her eyesight has been failing, and now she can only see to read pretty large type. She has no fever, and all the other organs of the body seem to be healthy.

On examination it was found that the left (first affected) leg was somewhat more wasted than the right, measuring only 11 in., as compared with 12 in. on the right side, at its greatest circumference. Sensation was completely lost all over the body with the exception of the head and neck; the reflexes, superficial and deep, were totally abolished, and there was no response to either form of electricity.

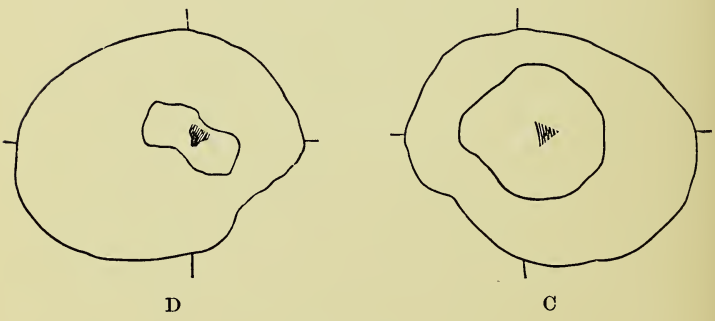
The following are the reports on the eye by Drs. Reid and Wallace:—

"Both nerves are pale. Retinal vessels congested. Nothing pathognomonic of disease. Vision of right eye normal—that of left rather defective, reduced about one fourth. With glasses can see large type with left eye" (Dr. Reid). "Both visual fields, as taken by the perimeter, are very much contracted—especially that for the left eye, which is irregular in outline, and not concentric like the right. There is a central scotoma in both,

in extent nearly proportionate to the area of the visual field in each eye" (Dr. Wallace). See diagrams A and B.



Dec. 7, 1887.



Feb. 5, 1888.

VISUAL FIELDS IN DR. ANDERSON'S CASE.

EXPLANATION OF PLATE.

The accompanying diagrams show the fields of vision, A and B having been taken on 7th December, 1887, and C and D on 5th February, 1888. The outer line shows the shape and extent of the normal field; the inner line gives the proportional size and shape of the visual field in this case. The shaded portions in the centre mark the positions of a central scotoma. The vertical and horizontal

lines would, if drawn so as to intersect, cut one another at the central point of the field—*i.e.*, at that point which corresponds to the macula. The blind spot indicating the situation of the optic nerve lies slightly to the temporal side of the field, corresponding to the nasal side of the retina. The fields are greatly contracted, especially those of the left eye, although a decided improvement is evident in those of the later date. A central scotoma for all colours is present in A, B, and D, while the small shaded area in C is a scotoma for red and green, but not for white. It corresponds exactly to the position of the blind spot—(W. WALLACE).

On 25*th December*, 1887, she was found to be exactly in the same state as on admission.

On 6*th January*, 1888, it was noticed that the disease had further progressed. The girdle sensation was felt higher up in the chest, and the anaesthesia extended up to the lower half of the face.

On 12*th January* the girdle sensation was felt on a level with the clavicles, and the anaesthesia extended as far as the temples.

On 17*th January* the anaesthesia was universal, and dysphagia was so great that she was nearly suffocated, and was only saved by the removal from the top of the larynx of a piece of meat which had lodged there.

At this time she was shown to the class, and her condition, shortly, was as follows :—Lightning pains, some time gone, after two powders (gr. 15) of antipyrin ; paraplegia absolute, except that she could move the toes of the right foot slightly ; anaesthesia universal and complete ; unable to tie a knot, or to lift a pin, or to read small print ; girdle sensation on a level with clavicles ; reflexes absent ; sexual power gone ; micturition and defecation difficult ; dysphagia very marked, so much so that she was nourished for the most part *per rectum*.

The family history in this case might have led to the suspicion that the spinal disease was of a strumous character ;

but I was inclined to believe that it was syphilitic for the following reasons :—

1st. She had a pallid and earthy complexion.

2nd. Before and for three years after her marriage (at the age of 23) she enjoyed exceptionally good health. She then became pregnant, and had an abortion, without any obvious cause, at the fourth month, and was much weakened by hæmorrhage. Two months after this she again became pregnant, and again aborted at the fourth month. Twelve months after this she was delivered of a healthy child at the full time. It is further worthy of note that her husband, being a soldier, was separated from her, and returned home shortly before the first pregnancy set in, although, as far as she knew, he was in good health.

3rd. During the whole period of the first pregnancy she had very severe headache, which was nocturnal in its character.

She was therefore put upon iodide of potassium (10 grains thrice daily) on 17*th January.*

On 21*st January*—four days after the treatment was commenced—she was again examined, and was found to be much improved. She looked better and felt less languid. Power was returning to the lower extremities, especially to the right limb. The anaesthesia was nearly gone from the head, neck, and trunk as far as the waist, and from the upper arms. The dysphagia was now quite a subordinate symptom, and the girdle sensation had sunk to the level of the breasts. She could now tie a knot and lift a pin. It is worth noting also that, coincident with the diminution of the anaesthesia, the tenderness over the 4th, 5th, and 6th dorsal spines reappeared.

She continued steadily to improve, and when she was again shown to the class, on 6*th February*—twenty days after the iodide was begun—the following was her condition :—

Her general health was much improved, and she had a much more healthy colour. She could move her legs with

freedom in bed, and could walk with slight assistance. The anaesthesia was quite gone, except from the feet, where especially on the soles, the sensation was still much blunted. The dysphagia and the girdle sensation had also disappeared, as well as the spinal tenderness. She could now read small print, and the improvement in the eyesight is further shown by the diagrams C and D on p. 40. Her bowels were now regular, and urination was much more natural, but the knee jerks were still absent.

19. *Symptoms of Locomotor Ataxy of two weeks' duration.*—Hugh C., aet. 49, coachman, came under my care on March 16th, 1888.

His father and mother died at the age of 82 and 73 respectively. He is one of a family of three sons, and both of his brothers died at the age of 27, one of phthisis, and the other as the result of an injury to the spine. He himself was married at the age of 19, and his wife has had a large family, of which more hereafter.

With one exception, to be mentioned later on, he enjoyed uniformly good health, and was always temperate in his habits.

A fortnight before admission he experienced uneasiness in the gastro-hepatic region after food, but without sickness or vomiting. Two or three days thereafter a dose of castor oil removed it entirely, but the day before this he began to complain of pains shooting down the legs along the course of the sciatic nerves (starting as if from the stomach). These pains, which were very severe, occurred in paroxysms, consisting of two or three "electric shocks" occurring in rapid succession, with intervals of about a minute between each series, and were supposed to be of a rheumatic nature. They were soon followed by burning pain and "prinkling" at the points of the toes, the heels, and in both calves. After the lightning pains had con-

tinued for twenty-four hours he got out of bed, and was surprised to find that he could not walk steadily, and that "his knees gave way below him." He also noticed that the wooden floor felt soft, and to use his own words, "like a piece of velvet or Scotch carpet."

Seven days before admission his water stopped whilst he was making it, and it was only after a prolonged effort, and many trials, that he succeeded in emptying his bladder. Since then he has had a desire to micturate very frequently, but only a little urine came away at a time, and after prolonged straining. Coincident with his bladder troubles he noticed that his bowels, which had previously been very regular, became very costive, and he experienced great difficulty in emptying the rectum. After an aperient he had diarrhœa, had the utmost difficulty in retaining the motions, and on one occasion had an involuntary evacuation. He had now, too, lost all inclination for sexual intercourse.

On examination it was found that ataxy was very pronounced. He was only able to walk with support, and could not walk backwards, or along a narrow plank, or stand with his feet together and his eyes shut even for a moment. Anaesthesia was absent, but sensation was much perverted. The ground felt soft and warm, and the roots of the toes and heels, and to a less extent the legs as far as the knees, were the seats of a "numb, prinkling" sensation. The neuralgic pains along the course of the sciatic nerves continued; the knee jerks were absent, but the cremasteric reflexes were very active. The bladder and bowel troubles persisted, but there was no girdle sensation, and examination of the spine was negative.

His medical attendant wrote that the case had puzzled him very much, and that his symptoms had defied all treatment. I was led, however, to suspect that they had a syphilitic basis for the following reasons :—

1st. Sixteen years ago he exposed himself to venereal infection, and contracted a hard chancre on the glans penis which was cut out, the scar of which still remains. Coincident with this he had a sore throat and aphonia. Previous to this his wife had six healthy children and she had a seventh shortly after, and while he was still away from her. But her next pregnancy resulted in a still-born child. She then had two, apparently healthy children, and lastly a miscarriage at the sixth month.

2nd. The neuralgic pain, above mentioned, was very markedly nocturnal in character, indeed, it disappeared entirely in the daytime.

3rd. No other probable cause for the symptoms could be made out.

Treatment was commenced on *March 19th*, three days after his admission, during which time his symptoms were on the increase, and consisted of mercurial inunction (℥i. of mercurial ointment being rubbed in daily), and the neuralgic pain was temporarily arrested by 15-grain doses of antipyrin.

On *March 25th*, six days after the treatment was commenced, he was examined in presence of the class and was found to be greatly improved. He could not only walk without support, but could traverse a single plank, and move backwards fairly well, and he could stand unsupported with his feet together and his eyes shut. The numb feeling, though greatly mitigated, was not quite gone, and he felt the floor both hard and cold. The neuralgic pain was very trifling but the antipyrin, undoubtedly, contributed to this. He had now much less difficulty with his water, and his bowels were quite regular. The knee jerks remained, however, in abeyance.

20. *Locomotor Ataxy of one month's duration.*—J. C. H., aet. 43, consulted me on February 3rd, 1885. His symptoms

only dated back four weeks. These consisted of well-marked staggering gait, with numbness of the lower extremities, and inability to feel the ground properly when walking. For a week, too, he had experienced numbness of the arms (especially on the right side) as far up as the elbows, and limited to the region of distribution of the ulnar nerves (the thumbs, index, and the corresponding side of the middle fingers escaping). His knees felt slightly stiff, and he suffered from a feeling of tightness across the stomach and of much flatulence, especially after food, and at times he had a feeling of a band across the abdomen. The knee jerks were entirely absent. He attributed his symptoms to going out after sitting in a hot office. But ten years before I saw him, he had a single chancre on the penis, followed by blotches on the skin and pains in the bones, which, however, did not trouble him long, and for which he was only treated for a short time.

Treatment was commenced on *February 4th,* a drachm of mercurial ointment being rubbed into the skin daily. On the 7th the numbness of the legs was gone and that of the arms a little diminished. On this day the dose of the ointment was doubled, and he was directed to apply galvanism to the spine for ten minutes daily (ten cells of a Leclanché battery).

On the 19th the following note was taken :—"The numbness in the arms has steadily diminished, and he now walks well After the use of 2 drachms of mercurial ointment for three days, it was omitted for three days, owing to slight salivation and then only 1 drachm was employed." The ointment was now increased to a drachm and a half.

At the end of March he went for a change to Jersey, and, although the weather was bitterly cold, he steadily improved. On his return, on *April 28th,* he reported that for some time he had felt quite well, with the exception of a little remaining numbness of the right arm. (This patient continues well.)

In the next case there was evidence of implication of the *lateral column* of the cord.

21. *Paresis of Lower Extremities, with Tremor on Exertion, Rigidity, Spasms, and Exaggerated Reflexes.*—Jas. H., aet. 33, cabinet-maker, came under observation on 7th September, 1881, suffering from an affection of the lower extremities of about eight months' duration.

During the previous winter he complained of numbness and coldness of the feet, and, even upon admission, the coldness was frequently complained of, although the numbness, which was a striking symptom at the time mentioned, had disappeared. About six or seven months before I saw him, he began to notice that, on exertion, his lower extremities very soon felt sore, weak, and wearied; and about the same time he observed that, if he sat long in one posture, he felt so stiff that he had to walk thirty or forty yards before the legs became supple again. Soon after this it was noted that, when sitting in the open air and getting up suddenly, the muscles on the inner aspect of the thighs were in a state of cramp, so much so, that he could not walk, or even straighten himself, until it passed off. For many years he has been troubled with constipation, which, since the commencement of his present illness, has been decidedly more pronounced, and about four months ago he observed a gradually progressing failure of sexual power, until it became almost entirely lost.

(For some months he had had urinary troubles which, on admission, were found to be due to a slight stricture of the urethra, which was soon rectified).

The weakness in the lower extremities slowly increased, especially as regards the right limb, and they were often the seat of tremors, especially on exertion. The stiffness and rigidity of the limbs also steadily advanced, and for several

months he had been much troubled with the cramps, which were at times so excessive that the legs were violently drawn up.

His family history was unimportant, and, with an exception afterwards referred to, he had hitherto enjoyed good health, although long subject to acne of the face.

On admission the following was the state of matters:—There was no ataxy, but the lower extremities were very weak, and, when he exerted himself, the seat of tremors. There was no wasting of the limbs, but well-marked rigidity and occasional violent spasms were complained of. The electric contractility and reflex excitability were retained. The knee jerks were much exaggerated, and ankle clonus was pronounced.

The syphilitic basis of these symptoms was suspected for the following reasons :—

1st. He had venereal disease three times. On the first two occasions—fourteen and eight years before—he had soft sores, which were treated locally, and were not followed by constitutional symptoms. On the last occasion—fifteen months before I saw him—he had a hard sore on the penis, succeeded by an eruption all over the body and ulceration of the throat and lips.

2nd. Some brown discolorations were found, chiefly on the legs, where the eruption had been, the inguinal and neck glands were enlarged, and the hair was thin and came away readily.

3rd. The age of the patient—33.

4th. The absence of any other probable cause.

Treatment consisted of mercurial inunction, which was commenced on the *4th of November*, after a course, for five weeks, of very small doses of perchloride of mercury (gr. $\frac{1}{12}$) and iodide of potassium (gr. v.), thrice daily. Even before the inunction was commenced, he stated that he thought he walked much better.

On *Nov.* 26*th* the following report was taken :—" Patient

continues steadily to improve. He walks much better, has a better 'grip of the floor,' and the rigidity has quite left his left leg. The spasms which he used to have when sitting up have quite disappeared, although he occasionally has them after going to bed."

When he left the Infirmary, on *January 6th*, 1882, the rigidity had nearly disappeared, and he was able to walk steadily. The exaggeration of the knee jerks was much less apparent, and the spasms were less frequent and less pronounced, but the ankle clonus was as distinct as ever. Considering the duration of the symptoms, this result must be deemed satisfactory, and corroborative of the syphilitic nature of the disease. Had he been treated at the commencement of his illness, as far as I can judge from other cases, he would probably have made a good recovery.

In the next two cases *Paraplegia* was a prominent feature.

22. *Paraplegia with Rigidity, Tremors, Exaggerated Reflexes, and Bladder and Bowel Troubles.*—Patrick M., aet. 45, iron turner, was admitted into the Western Infirmary on February 21st, 1887, complaining of paralysis of the lower extremities, with bladder and bowel troubles. The family history was good, and threw no light upon his illness which he attributed to cold, and to draughts in connection with his work.

This began about seven months before with a sense of coldness, coupled with a feeling of weakness in the lower extremities. The paresis gradually increased to such an extent that he became quite unable to walk to his work, and his bowels became very irregular, constipation alternating with diarrhœa. Shortly thereafter he completely lost control over his bladder and rectum. Soon after the full development of these symptoms he resided for seven weeks in the Royal Infirmary, but without any permanent benefit.

On admission his general health seemed to be fair, although he had lost a good deal of flesh. The paralysis of the lower extremities was not complete, but so decided that he could only walk with the aid of a couple of sticks. He had incontinence of urine, and often passed his fæces in bed while at other times he was costive. There was no anaesthesia, although he complained of a feeling of "pins and needles," especially in his feet and hips, and of "cold streams" along the outer aspects of the thighs. There was considerable rigidity of the limbs, and the plantar and deep reflexes were much exaggerated.

These symptoms were suspected to have a syphilitic basis from the following considerations:—

1st. He had had three attacks of gonorrhœa, the first when he was under twenty, and fourteen months before I saw him (a fortnight after exposure to infection), he had a single sore on the penis, which was followed by alopecia, a rash upon the skin, sore throat, and sores upon the lips, gums, and tongue.

2nd. The scar of the sore on the penis was detected, as well as the remains of the lip sores.

Treatment was commenced on *March 1st*, gr. $\frac{1}{8}$ of perchloride of mercury being injected daily into the subcutaneous cellular tissue, which was preceded by gr. $\frac{1}{6}$ of morphia sulphate, in order to mitigate the irritating effects of the former.

On *May 1st* the dose of the subcutaneous injection was increased to gr. $\frac{1}{4}$.

On *May 6th* the following report was taken:—"Patient's bowels are still very costive, but he never passes his motions in bed, and he can keep his water pretty well. The paraplegia is much less, as he can now stand without support, and can walk with the aid of only one stick. His general health is much improved, and he feels 'livelier and in better spirits,' and stronger."

23. *Paraplegia, Anaesthesia, Incontinence of Urine and Fæces, and four Sloughing Bedsores.*—Jas. W., a labourer, aet. 40, came under observation on June 30th, 1885, with almost complete paraplegia and anaesthesia, incontinence of urine and fæces, and bedsores. He was married and had seven of a family, and his wife had one miscarriage previous to the birth of her last child twelve months prior to admission.

Six weeks before I saw him he began to experience a gradual loss of power commencing in the feet, and extending up the legs, inability to micturate, and loss of control over the rectum. He had, too, a feeling of numbness and coldness in the lower extremities, "as if standing in iced water," which gradually deepened into nearly complete anaesthesia. This was accompanied by severe pain. In about a fortnight the paralysis had so increased as to prevent him from walking, and he took to his bed.

On admission it was found that the paralysis of the lower extremities was almost complete, and sensation was seriously impaired. There were four very large and deep bedsores, one on each ischial tuberosity, and two over the sacrum, all of which were sloughing. There was incontinence of urine and fæces.

These symptoms were suspected to have had their origin in a syphilitic lesion for the following reasons:—

1st. The skin had a very dusky tint.

2nd. There were numerous cicatrices, circular in outline, and with coppery edges, on various parts of the body, the most marked being the size of a crown piece, and situated near the left anterior spine of the ilium.

Treatment was commenced on *July 3rd*, and consisted of inunction of Shoemaker's *mercurous* oleate ointment, a drachm daily.

On *July 16th* it was noted that the anaesthesia had in great measure disappeared, and that he could move his legs

much better. The function of the rectum was restored, but the incontinence of urine remained. The bedsores—which were dressed in the ordinary way—speedily healed.

On *November 4th* he left the Infirmary nearly well, and on *August 1st*, 1886, he walked a long distance to the Hospital to show himself. He was perfectly well in every respect, save that the incontinence of urine still persisted (chronic cystitis).

It may be interesting to compare the above case and its treatment with the following remarkable case of non-syphilitic myelitis. This patient was admitted into Ward II. of the Western Infirmary on February 26th, 1881. He was thirty-five years of age, a sailor, unmarried. His father died at the age of eighty-nine, and his mother at forty-seven, the causes of death being unknown to him. Nine brothers and sisters died in childhood, and two brothers and sisters were alive and well.

Two months before admission, abandoning his sailor life for the winter, he got employment in one of the Govan dry docks, where he had to lie, kneel, or sit on cold iron plates in order to do his work. In consequence of this, and three weeks before I saw him, he caught a severe cold, which, however, did not lay him aside; but twelve days thereafter, on getting out of bed, he felt a "sleepy sensation" in his feet and numbness in the middle finger of the right hand, which caused him to stay at home that day. Next morning he attempted to go to his work, but had not gone very far when his knees became so weak that he had great difficulty in getting home; even on leaving the house his gait was like that of a "drunk person." From this time onwards the "sleepy condition or numbness" of his feet spread gradually up to the lower part of his body. The numbness at first complained of in the right middle finger also soon spread to the other fingers of the hand, and to the wrist, and three days later the left hand and wrist became

similarly affected. For a week prior to admission he experienced great difficulty of swallowing and of speaking, and his breathing was noisy. From the commencement of his illness his bowels, previously regular, became obstinately constipated; and, three days before admission, his urine became scanty, high coloured, and muddy. He always previously enjoyed very good health, with the exception of an occasional cold, and said that he had been as temperate as sailors usually are—only getting drunk when on shore.

On examining him on *February 1st* there was complete paralysis of the lower extremities—so complete that he could not even move a toe—but only partial paralysis of the upper limbs. These he could move, but not with the same ease and vigour as formerly, and he grasped objects somewhat feebly. On using the dynamometer with the left hand the indicator registered 35, and with the right only 17 pounds: the muscles responded feebly to electricity. But not only was there paralysis of motion; the sensation also was very defective from the toes up to the chest, and in the hands too, so much so that he could only feel considerable pressure made with the finger or pin-point. The reflex excitability was likewise completely annihilated. But still more serious symptoms than these were manifest; for the breathing was very laboured and noisy, he spoke with difficulty and in a hoarse whisper, and dysphagia was so great that, on attempting to take a drink, he was nearly choked, and it was necessary to abstain from feeding him by the mouth. No pain was complained of anywhere, but, on examining the spine, some tenderness was detected over the last dorsal and first lumbar vertebrae. The application of hot and cold sponges to the spine yielded negative results. The temperature remained normal throughout, except that, on the first week after admission, it rose on five occasions up to, or above 100° Fahr.—twice in the morning and three times in

the evening—and on the second evening after admission it touched 102°. The day after he came under my observation his breathing became so laborious and difficult that for many hours he seemed to be in a dying condition, and he was quite unable to swallow anything. These symptoms pointed to widespread and alarming inflammation of the spinal cord, and no time was lost in endeavouring to subdue it.

Treatment was commenced on *January 27th.* He was put upon an air-bed, was kept off his back as much as possible, and the skin over the sacrum, which was red (threatening bedsore), was sponged frequently with camphorated spirits of wine. A subcutaneous injection of gr. $\frac{1}{100}$ of sulphate of atropia, night and morning, was prescribed, and he was fed entirely through the nose by means of a piece of indiarubber tubing on the syphon principle.

Next day—*January 28th*—flying blisters to the spine were commenced. On the morning of this day a narrow blister was applied over the lower cervical and upper dorsal region for an hour; on its removal the skin was found to be only slightly reddened, but by the evening most complete vesication had occurred. On the *2nd of February* a second blister was applied over the tender spot on the spine, at the junction of the dorsal and lumbar vertebrae; on the *10th* one was applied to the lower lumbar region, on the *12th* to the cervical region, and on the *16th* over the middle of the spine. In all, therefore, five blisters were applied, on each occasion for an hour, but none of them produced the slightest vesication, with the exception of the first.

On the *1st of February* the liquid extract of ergot, in doses of half a drachm every four hours, was commenced, a remedy which, like belladonna and its active principle atropia, is reputed to diminish congestion of the cord.

Finally, on the *7th of March,* the sister was directed to have

the paralyzed parts and the spine rubbed with warm camphorated oil night and morning.

The following notes, extracted from the *Journal*, sufficiently indicate the progress which was made :—

On 29*th January* he could move his legs a little, and breathing and swallowing were much easier, so much so that in the evening he took a bowl of porridge and milk by the mouth.

On 30*th January* there was no further improvement in the paralysis, but the anaesthesia was not quite so marked. He could also breathe and swallow quite well, but the bowels were as costive as ever, and the catheter required to be used on account of retention.

On 31*st January* there was incontinence of urine, but next day this had passed off, and the paralysis of the limbs was a little less marked.

By the 3*rd of February* he had decidedly gained, could move his legs and bend the knee joints to a considerable extent, and could turn himself round in bed. Sensation, too, was much improved, though less so in the right leg and right side of the body than in the left.

On 6*th February* the catheter had to be used for the second time, the urine, however, remaining healthy.

On the 9*th of March* it was noted that the improvement steadily continued. The bowels and bladder acted normally ; he could breathe and swallow as well as ever, and could move his arms and legs quite freely, and even walk a few steps with support. But he still complained of some numbness, which, however, was limited to the soles of the feet and palms of the hands.

On 30*th March* all his symptoms were gone, with the exception of some numbness in the anterior part of the soles, where there was a feeling as if a ball was under each foot and slight

paresis. The dynamometer now registered 75 pounds on each side. He walked pretty well, but with the knees a little bent, and like a patient convalescent from a fever. The patellar tendon reflexes were, however, absent.

This patient soon afterwards left the Infirmary, and as he has not since been heard of, it is to be hoped that he made a complete recovery.

The last is not the least interesting of the series.

24. *Aphasia, Defective Intelligence, etc.*—A gentleman, aet. 38, consulted me on August 31st, 1886:—"Between the 3rd and 5th of August," wrote Dr. Archibald Brown, of Mount Florida, who conducted the treatment, "Mr. A. experienced the first symptoms of his illness, a slight difficulty in pronouncing certain words. On the 6th of August, on landing at Greenock after a sail on the river, he found himself unable to speak; but, on arriving at Glasgow, the power of speech had returned. For about ten days afterwards he felt an occasional numbness of the left cheek and point of the tongue, and experienced a distinctly metallic taste. On the evening of the 16th of August he suddenly suffered from a choking sensation, followed by contraction of the left side of the face, and loss of speech. He was quite intelligent at the time, but felt some confusion of mind. The power of speech returned in about an hour, but from the 17th to the 31st he became speechless four or five times. During all this time he was unable to make the simplest calculations, and could not spell words correctly, with the single exception of his own name. On the advice of Dr. Moyes of Largs he took iodide of potassium for a week, but derived no benefit from its use."

When I saw him, on the 31*st of August*, there was a little permanent aphasia; he could not write very accurately (*e.g.*, when I asked him to write Fairlie he wrote Fairlia, but he

knew that he was making a mistake), and he was suffering from severe pain, chiefly in the back of the head, which set in some time after the onset of the aphasia.

I suspected that these symptoms had a syphilitic basis on the following grounds:—

1st. Thirteen years before he had a solitary chancre on the penis.

2nd. There was an ulcerated patch on one leg, the edges of which were perpendicular: it was circular in shape, and the skin around had a coppery colour.

3rd. There were coppery stains on the legs and on one arm.

4th. The pain in the head was nocturnal in character.

Treatment consisted of the inunction of a drachm of Shoemaker's *mercurous* oleate ointment daily.

On *September 4th* I saw him with Dr. Brown. For the first two nights the pain in the head was worse, but, for two nights before his visit, it was much relieved.

"In a very few days," wrote Dr. Brown, "after beginning its use (mercurous oleate ointment) under my observation, improvement in pronunciation and power of speaking set in. In three weeks all the symptoms had disappeared."

GENERAL DIAGNOSIS.

We are now prepared, on the basis of the foregoing cases, to consider the grounds upon which a diagnosis of the syphilitic nature of a lesion of the nervous system may be made, and perhaps the best plan is to state them in a series of propositions. Many of these are, of course, familiar to all, but it is necessary to refer to them shortly in order to complete the picture.

1. *A History of the Entrance of the Syphilitic Poison into the System.*—Positive evidence of this is of great value, but negative evidence should not divert us from our suspicion if, for other reasons, a syphilitic basis is probable. Many patients are ignorant of, or forget their having contracted syphilis (for the initial lesion is often a very trifling matter, and the poison may enter the system in a great variety of ways), while many are loath to admit that they have ever exposed themselves to such infection. The interval, too, which has elapsed since the time of infection is often so long as to put us off our guard, and to render it likely that we may fail to connect the disease of the nervous system with the syphilitic contamination as cause and effect; while, with certain limitations, it may almost be said that the longer the poison has lain dormant in the system the more likely are internal organs to suffer. Of the twenty-four cases above-mentioned there were thirteen in which the time of infection was known, and in them the intervals elapsing before the nervous affection set in were $2\frac{1}{2}$, $3\frac{1}{2}$, $4\frac{1}{2}$, 6, 7, 9, 10, 13, 13, 16, 18, 25, and 30 years. We must also bear in mind that diseases of the nervous system may be the result of

hereditary syphilis, the history and evidences of which must be carefully inquired into.

2. *The Discovery of other Manifestations of Syphilis.*—In those comparatively infrequent cases of implication of the nervous system in the secondary stage of syphilis, we are pretty sure to find evidences of the disease on the skin, mucous membranes, etc. But as the nervous system generally suffers in the late stages, such evidences are not certain to be found, and, when present, they are usually much less numerous. What we must specially look for now are tubercular eruptions, serpiginous ulceration, gummy tumours in the subcutaneous tissues, deep ulceration of the palate or of one side of the throat, syphilitic disease of the tongue (which must not be confounded with the so-called Tylosis linguæ), periostitis, enlargement of a testicle, or amyloid disease of internal organs without any other probable cause to account for it.

3. *The Discovery of Traces of bygone Syphilitic Manifestations.*—Amongst these may be mentioned a cicatrix upon the penis, usually slight, and not otherwise satisfactorily accounted for; circular cicatrices on the skin with sharply-defined edges, and often with coppery areolæ—these are especially valuable if not situated below the knee; scars at the angles of the mouth or on the palate or fauces; perforation of the septum nasi, atrophy of a testicle, or indurations upon the superficial bones, the remains of attacks of periostitis.

4. *The Presence, or the History of Pain in the Joints, Bones, or Head.*—This feature is very suspicious if it is markedly worse at night. Indeed it may almost be said that pain which is agonizing by night and disappears by day is pathognomonic of syphilis. At the same time the converse does not hold, for syphilitic pain is not always nocturnal in its exacerbations. When such pain is in the head it usually involves only a part of it—oftenest a lateral half, or it may be very localized,

in which case it is often accompanied by tenderness on pressure.

Sleeplessness is a frequent concomitant of headache, but it often occurs independently of it, and when met with in persons who are not advanced in years, and along with other symptoms pointing in the direction of syphilis, it is a very suspicious symptom. It may be permanent, or there may be intervals of comparative or complete immunity from it.

5. *The Appearance of the Patient.*—The syphilitic subject is very likely to have lost his healthy appearance, and to have a dirty, earthy, sallow complexion, which is all the more marked the longer the poison has remained unchecked in the system. This peculiar form of anæmia is not constantly present, but, when pronounced, it is very significant of syphilis to the skilled observer, especially if he knows the patient to have had a clear complexion in earlier years.

But although there is conclusive evidence that the patient has contracted syphilis, or even if he presents unmistakable symptoms of that disease at the time, it does not follow of necessity that the disease of the nervous system is syphilitic; for there is nothing to prevent a syphilitic subject from having a non-syphilitic nervous trouble. The combination may be a mere coincidence, although such cases are far from common, and demand very careful investigation into all their surroundings before concluding that the affection of the nervous system is not specific.

6. *The Age and Sex of the Patient are very Important.*—Syphilitic affections of the nervous system are met with at all ages, but most usually at or before middle life. If, therefore, we are able to exclude other causes of the disease under observation which are common in comparatively young persons, the probability of syphilis is great. Thus, if hemiplegia occurs at the age of 30 or 40, and there is no kidney or heart disease, and no traumatic cause to which it can be traced, and no

premature degeneration of the coats of the blood-vessels which are within reach, the suspicion of a syphilitic basis is strong. My experience coincides in this respect with that of Buzzard, who says that, "putting aside cases of injury, hemiplegia or paraplegia, occurring in a person between 25 and 45 years of age, which is not associated with Bright's disease, nor due to embolism (from disease of the cardiac valves) is, in at least 19 cases out of 20, the result of syphilis." [1] Again epileptic convulsions, due to syphilis, very rarely set in under 20, and generally long after that age, while genuine epilepsy, in a large proportion of cases, commences between 10 and 20 years (in 106 out of 172 cases [Reynolds]). Of the twenty-four cases recorded the syphilitic nervous affection occurred in nineteen between the ages of 24 and 45, and in the remaining five the patients were 48, 48, 49, 62, and 62 years old.

The influence of sex is also well marked, there having been twenty cases in males to four in females, a circumstance which is due mainly to the fact that syphilis is much less frequently contracted by women than by men.

7. *The Occupation of the Patient.*—Syphilitic affections of the nerve-centres are believed by Lancereaux and others to be much more frequent amongst the members of the learned professions, and those who work with their heads, than amongst the lower classes, and those who work with their hands, owing to the demand for greater exertion of the brain, and I daresay, relatively, they are; but I am not inclined to make much of this from a diagnostic point of view, having encountered so many cases in hospital practice. This probably arises from the greater frequency of syphilis among the working classes, and from the very general absence of careful and prolonged treatment in the earlier stages of the disease.

[1] *Clinical Aspects of Syphilitic Nervous Affections.* By Thomas Buzzard M.D. London: Churchill. 1874.

8. *Syphilitic Nervous Lesions are frequently Multiple.*—Although often single, they have a great tendency to this characteristic, so much so, that, whenever we meet with symptoms pointing to the existence of two or more separate lesions of the nervous system—for example, paraplegia and paralysis of a cranial nerve—the suspicion of syphilis being at the root of them must be seriously entertained, especially if we are able to exclude such disorders as diphtheritic paralysis, which should not be difficult if we are on our guard. For instance, a gentleman, aged 30, whom I had treated for secondary syphilis in 1879, came to me in January, 1881, on account of diplopia, the result of slight paralysis of the left sixth nerve. Next month he had a typical epileptic convulsion, preceded and followed by nocturnal headache. All these symptoms speedily vanished under the influence of iodide of potassium; but some months later he had an attack of left hemiplegia, for which anti-syphilitic treatment, followed by a voyage to Australia, was prescribed. Since then he has remained well, although he has never quite lost a slight limp in walking.

9. *The Variability of the Symptoms.*—If the symptoms of a brain lesion vary much from time to time, independently of treatment, and without any other obvious cause, the syphilitic basis of them is probable, for we rarely find this—to the same extent at all events—in the case of non-syphilitic affections. This feature is well illustrated in Case 24.

10. *In Cerebral Syphilis certain Fundamental Types are very often recognized.*—These, according to Heubner, are as follows:—

(*a*) Psychical disturbances, with epilepsy, incomplete paralyses (seldom of the cranial nerves), and a final comatose condition, usually of short duration. This type usually depends upon the presence of a gumma in the subarachnoid space of the convexity of the cortex, which secondarily attacks the brain and leads to

softening of the subjacent parts, or upon diffuse gummous meningitis.

(*b*) Genuine apoplectic attacks, with succeeding hemiplegia, in connection with peculiar somnolent conditions, occurring in often-repeated episodes; frequently phenomena of unilateral irritation, and generally at the same time paralyses of the cerebral nerves. This form is generally due to syphilitic disease of the arteries, leading to their obstruction and to softening of the motor ganglia, especially of the lenticular and caudate nuclei. It is often accompanied by a new growth, commencing in the membranes at the base and extending to a variable depth into the interior of the brain. The peculiar somnolent conditions common in this variety are probably the result of narrowing, without total obstruction, of a large number of arteries, thus making an injurious impression upon the whole brain.

(*c*) Course of the cerebral disease similar to that of dementia paralytica (general paralysis of the insane), but frequently accompanied by epileptiform attacks, nocturnal headache, or implication of cerebral nerves.

In this type there are no gross anatomical lesions, and it is supposed by some that repeated hyperæmias, affecting especially the grey cerebral cortex of the anterior lobes, may be the cause of the symptoms. But, in certain cases, there has been found an unusually marked proliferation of nuclei around the capillaries of the cortex, whose walls are thickened, sclerosed, and in a state of fatty degeneration, and which are apt to be obliterated.

When the spinal cord is attacked there is a great tendency for the disease to set in with symptoms of spinal irritation, followed by paralysis, which rapidly increases, and the affection progresses in the form of an acute spinal paralysis.[1]

[1] For further particulars see *Cyclopædia of the Practice of Medicine*, edited by Dr. H. von Ziemssen. Article by Heubner, vol. xii., p. 293.

11. *Eye Symptoms.*—A careful examination of the eye and its appendages frequently helps us to the diagnosis of a syphilitic nervous affection, or, at least, arouses the suspicion that the patient is tainted with syphilis, for the two propositions are not identical.[1]

While any or all of the nerves supplying the muscles of the eyeball may be affected (ophthalmoplegia externa, and interna), the third and sixth are those which are most frequently implicated in syphilitic disease, especially that branch of the oculomotor for the supply of the internal rectus muscle; and nuclear paralysis of the sixth nerve, with conjugate deviation of the eyeball, is of more diagnostic importance, as far as syphilis is concerned, than peripheral paralysis of that nerve. The cornea and iris are the structures of the eyeball which are most frequently the seat of syphilitic affections. An interstitial inflammation of the cornea, accompanied by dulness of hearing and faulty development of the teeth, as pointed out by Hutchinson, may be regarded as distinct evidence of heredo-syphilis. More than 30 per cent. of all cases of iritis are said to be of syphilitic origin. It occurs usually during the secondary stage of the disease, and is generally symmetrical. When it is accompanied by the development of minute gummata along the margin of the pupil, or in the substance of the iris, it is pathognomonic of syphilis, and occurs, as a rule, at the close of the secondary or beginning of the tertiary stage of the disease. When the iritis extends to the choroid (irido-choroiditis), or when the whole of the uveal tract is simultaneously affected, associated with opacities in the vitreous, the disease probably has a very deep hold upon the system, and sooner or later symptoms of lesions in other organs, as the brain or spinal cord, may be expected to occur. On account of the intimate nutritive and anatomical

[1] For the information which follows I am much indebted to my colleague, Dr. Thomas Reid, as well as to Dr. Freeland Fergus.

relations of the choroid with the retina and optic nerve, these structures are often implicated, giving rise to dimness of vision, with atrophic patches in the choroid in the region of the macula, or at the periphery of the fundus. This form of inflammation occasionally ends in atrophy of the eyeball, and is of far more serious import than choroiditis disseminata, of which about one half of the cases are said to be syphilitic.

Affections of the retina and optic nerve are comparatively rare apart from affections of the choroid; but in some cases of syphilis the patient complains of central dimness of vision, and in such cases the ophthalmoscope reveals a general mistiness of the whole retina, with veiling of the optic-nerve entrance. Such cases of retinitis usually implicate both eyes—the one after the other—are generally transitory, and are characterized by the fact that it is usually the central region which is most affected. The optic nerve may be affected in various ways (neuro-retinitis, neuritis, atrophy), but the appearances presented on ophthalmoscopic examination do not present any characteristic features to distinguish them from those which accompany non-syphilitic affections of the brain or cord, or of their membranes.

12. *Syphilitic Affections of the Nervous System are generally unaccompanied by Syphilitic Affections of the other Viscera, and vice versâ*—a circumstance which should be borne in mind, lest erroneous inferences might be drawn. Of the twenty-four cases already referred to, there was not a single one in which there was *clinical* evidence of the implication of any other internal organ.

13. *The Results of Treatment.*—In all cases in which there is a suspicion of the syphilitic basis of an affection of the nervous system we should give the patient the benefit of the doubt and put him upon anti-syphilitic treatment. If the symptoms unmistakably yield, our suspicion becomes a certainty, although the converse does not always hold good. A syphilitic lesion, even although we succeed in removing it by treatment, may

have so compressed and damaged the tissues in which it was embedded as to preclude the possibility of a complete restoration to health. Syphilitic disease of the coats of the blood-vessels, too, may lead to their occlusion, and to softening of the parts supplied by them, which cannot, of course, be influenced by mercury or iodide. Hence hemiplegia setting in suddenly is much less likely to be cured than when the symptoms develop gradually. In like manner hemiplegia, which is followed by descending degeneration of the lateral column of the cord, which is a non-syphilitic lesion, cannot entirely be recovered from.

TREATMENT.

Whenever we suspect that a nervous affection is of a syphilitic nature, we should attack it at once with anti-syphilitic remedies, and just as energetically as if we were absolutely certain of our diagnosis. A faltering hand under such circumstances is fatal. A very prevalent belief with regard to the treatment of syphilis is that mercury is *the* remedy in the early, and the iodides in the late stages. Now I quite admit that iodine is *most* useful in the latter, and that mercury is *very* useful in the former; but at the same time I hold that some of the most brilliant results are achieved by mercury in old-standing cases of syphilis, and sometimes after iodide of potassium has failed. It may turn out, however, when we have had experience of the employment of heroic doses of the iodide (even to the extent of two ounces per day), which have proved successful and innocuous in the treatment of some cases of psoriasis, that more uniformly good results may be obtained from it. Our rule should be to begin with moderate doses—say 10 grains thrice daily—and steadily to increase the dose, either until the symptoms yield, or until the medicine begins to disagree.

Mercury may be given in a great variety of ways, which need not be enumerated; but I have a decided preference for mercurial inunctions, or for subcutaneous injections, as we thus attain speedy and excellent results, while avoiding derangement of the digestive organs.

For inunction the mercurial ointment of the *Pharmacopœia*, or Shoemaker's 50 per cent. mercurous oleate ointment, may be

used. The only objection to these preparations is their dirtiness, but, in the case of the latter, this difficulty may to a certain extent be overcome by preparing it without heat. In this way we obtain an ointment which, when freshly prepared, has a faint lavender tint. The inunction should generally be continued for months after the symptoms have yielded, and those who keep their teeth and gums scrupulously clean are much less liable to salivation.

The subcutaneous injection of the perchloride of mercury has one great objection, namely, that it may induce painful indurations or even abscesses. Various mixtures have been devised with the view of overcoming this obstacle, but none of those which I have tried possess any marked superiority over a simple solution of 4 grains in an ounce of distilled water, of which 15 to 30 minims (gr. $\frac{1}{8}$ to gr. $\frac{1}{4}$) may be injected daily. With the view of preventing the occurrence of inflammatory reaction the following procedure, in whole or in part, may be adopted. The skin is first frozen with ether spray, or with a small piece of smooth ice the surface of which is sprinkled with salt, and applied for a couple of minutes with the aid of a folded handkerchief. One eighth of a grain of sulphate of morphine is then injected deeply into the cellular tissue of the hip or other insensitive part, or where there is much subcutaneous fat; the syringe is then detached from the cannula, and filled with the sublimate solution, and in two or three minutes it is again attached to the cannula, and the solution is injected. Thereafter a lump of ice is kept applied to the part until all uneasiness has subsided. The rapidity with which syphilitic manifestations sometimes disappear, as well as the small quantity which requires to be used, as compared with the internal administration of the drug, is sometimes very astonishing.

APPENDIX.

As President of the Medical Section of the British Medical Association, held at Glasgow in August, 1888, I had the privilege of opening a discussion on "The Diagnosis and Treatment of Syphilitic Affections of the Nervous System," and I think that it may be interesting to append the remarks of the various speakers who took part in the discussion. In justice to these gentlemen, however, it is only fair to observe that, by the rules of the Association, no one was permitted to address the meeting for more than ten minutes, so that it was quite impossible to dicuss such a wide subject in an exhaustive manner.

Professor Grainger Stewart, after alluding in highly laudatory terms to the remarkable ability and lucidity of description which characterized the President's speech in opening the discussion, exhibited a patient, a woman 57 years of age. She had been twice married, and shortly after her first marriage had had what she called a rheumatic attack, which lasted six months. In the course of it, she never suffered from perspiration, nor were her joints specially affected; but she had, in addition to the pains, ptosis of the right eye, and some squint. When the ptosis disappeared she found that sight of that eye was lost. She had also slight paralysis of one leg, extraordinary polyuria, and fits of giddiness, with much pain in the head. Though there was no history of infection, yet, taking these and other facts into consideration, he (Prof. Stewart), had no doubt that the disease was really syphilitic.

The points of interest were confined to her nervous system. Complete anosmia had existed for sixteen years. Her sense of taste was good. She was blind of the right eye, and had considerable limitation of the field of vision in the left. She was deficient in the sense of touch in the leg and arm, but the evidence as to this point was not very satisfactory. The muscular sense was impaired in the legs. But the main peculiarity in the case was a set of seizures which came on

whenever the eyes were closed, or the field of vision interfered with.

Professor Grainger Stewart exhibited the patient, and showed that, when she closed her eyes, or when vision was intercepted by holding a piece of paper before her, she became unconscious; a somewhat noisy inspiration occurring as her head fell down upon her chest This lasted for about thirty seconds, during which time she was shown to be completely anæsthetic. There was no convulsive movement except the inspiratory grunt, and a marked spasm of the eyeball which was turned upwards and inwards during the fit. Several attacks were demonstrated in the presence of the section.

As regards the condition of the eye itself, there was posterior staphyloma, with some optic atrophy. There was not much difference in the ophthalmoscopic condition of the eyes, although the sight was completely lost in one and not in the other. The patient was described as always going to sleep with a preliminary attack of the kind demonstrated. He had known this patient for sixteen years, and she never had any kind of convulsive seizure, except what he had demonstrated. He had tried to bring on the fit by touching her suddenly, and by bringing a bright light to act upon her, and in many other ways, but without effect. He thought it probable that, whatever the lesion was, it was no longer in a condition amenable to treatment, but a cicatrix which mercury and iodide of potash were not able materially to influence. He expressed his intention of publishing in "Brain" a complete report of the case.

Dr. David Drummond, in the first place, congratulated the Section on the able way in which the subject for discussion had been brought before it. He would like to commence the few observations he had to make by a reference to the pathological side of the question. He had made a large number of *post-mortem* examinations upon cases of syphilis of the nervous system, but he would confine his remarks to cerebral lesions. Three gross varieties of syphilitic disease were to be met with in the brain, and if he were to place them in the order of frequency, he would give meningeal inflammation the first place. This occurred either in the form of pachymeningitis, or, what was more common, simple meningeal thickening, or milkiness from gummatous inflammation about the base, but more especially between the crura and the optic chiasma. Next, vascular lesions—and three distinct varieties could be named; first, a more or less general, though patchy

thickening of the vessels at the base, with yellow nodules standing out prominently here and there, a condition that resembled very closely cases of simple atheroma. Then, again, the disease was often local, confined perhaps to one Sylvian artery; and thirdly, he would like to lay stress upon what he considered to be a very important lesion, though one often overlooked. He referred to the manner in which an artery was encroached upon from without, by gummatous inflammation in the meninges, generally in the fissure of Sylvius. This he believed to be frequently the cause of the hemiplegia in the cases that speedily recovered. Then came the gummatous tumour, though he imagined some would be disposed to place it before vascular lesions. They chiefly occupied the membranes, as was well known, pressing in upon the surface of the brain. Nearly all these conditions, whether syphilitic disease of an artery, or a definite tumour, were accompanied by more or less thickening of the membranes, though this might be very slight.

The diagnosis of specific meningitis was not always easy, and would be found to turn largely upon a history of infection, and the character of the headache. This was usually persistent, more or less localized, often worse at night, and insomnia and irritability were very frequent accompaniments. It was not unusual to meet with paralysis of one or more of the cranial nerves; the 3rd, 7th, or 6th, for example, due in all probability, in the great majority of instances, to neuritis, which so frequently attended that form of meningitis.

Syphilitic vascular lesions were difficult to distinguish clinically from allied non-specific attacks. Hemiplegia was perhaps the most common result of thrombosis arising in a syphilitic patient, and aphasia was often associated with the paralysis, which not unfrequently took some time (a day or two) to develop. The seizure was usually preceded by marked giddiness, and occasionally by vomiting. Here the age of the patient (before the period of life at which atheroma is met), and the absence of the signs of general arterial disease, and chronic kidney affection, were of great importance. It should be borne in mind that hæmorrhage may take place into a gumma, situated in the substance of the brain. He thought this accident was more frequent than was generally supposed. The diagnosis of such a condition was difficult, though a sudden attack following on the signs of a cerebral tumour in a syphilitic patient should at least suggest it. The diagnosis of gummatous tumours was much more simple than that of either meningitis or vascular lesions. Here head-

ache was exceedingly common, often violent in character, and with it were vomiting and optic neuritis.

He was inclined to think that headache was not so frequent a symptom of cerebral syphilis as was generally supposed; indeed, he believed many cases ran their entire course with little or no headache. For example, a gumma located in the white substance of the hemisphere was often unattended by pain; and again, in many cases of syphilitic hemiplegia, there was no headache. Nor was it common to meet with it as a prominent symptom in that considerable group of cases in which a localized lesion in the motor area, indicated by limited spasmodic attacks (Jacksonian epilepsy), formed the chief disturbance. Cases were detailed illustrating the absence of headache, even in syphilitic tumours.

He strongly recommended the combination of mercury with iodide of potassium in treating syphilis of the nervous system. He had met with a good many cases that responded to this, after resisting the iodide alone. He thought harm was sometimes done by employing large doses of iodide potassium in the early stages of syphilitic thrombosis, at a time when everything depended upon nutrition, and perfect assimilation was of the greatest importance. He was disposed also to think that large quantities of the salt sometimes contributed to the formation of a clot in a degenerated vessel. He had seen cases that bore out this view.

Dr. Ross (Manchester) said the case shown by Dr. Grainger Stewart was probably unique, as he could not supply a parallel to it from his own experience, and he doubted whether he could throw any light upon the locality of the lesion. The defect of vision in the left eye does not appear to be any form of hemianopsia, but a more or less uniform restriction of the field of vision. He had seen a case in which blindness of the right eye was accompanied by complete paralysis of all the ocular muscles and polyuria, but in his case the left eye was the subject of a well-defined temporal hemianopsia. A large number of cases were recorded in which disease of the pituitary body, which lies beneath the optic commissure, had given rise to polyuria, unilateral ocular paralysis, amaurosis of one eye and hemianopsia of the other; at the same time the psychical symptoms in this case could not be caused by a basal lesion, and it is possible that a cortical lesion exists. The fact that, while the disease has been in existence for many years, atrophy of the right optic disc is only slight

in degree, seems to show that the blindness could not be caused by a gumma of the optic nerve, but at the same time paralysis of the ocular motor nerves shows that a basal lesion must have existed.[1]

On the general question he would like to refer for a moment to the diagnostic value of headache. Dr. Drummond has just said that we must be cautious in regarding headache as a sign of syphilis of the nervous system. It is seldom, however, that syphilis of the nervous system is present without being preceded by headache, and it is by far the most valuable premonitory symptom of an outburst of nerve syphilis which we possess. It is not uncommon for us to meet with cases of the following kind: the patient suffers from an intense headache, which lasts more or less continuously for five or six weeks, and has the usual characteristics of well-marked nocturnal exacerbations and sleeplessness. Three months afterwards syphilitic paraplegia comes on, or hemiplegia with aphasia. These grave accidents might have been altogether prevented had the significance of the headache been recognized.

With regard to the types of cerebral syphilis, we have groups of symptoms which are pretty constant because we have points of selection of the syphilitic poison. The first area of selection he would mention is the area of the Sylvian artery. The most prominent symptom of a lesion in this area is unilateral or Jacksonian epilepsy. Three varieties were generally described, viz.: that in which the spasm began; (1) in the side of the face (a form often accompanied by aphasia); (2) in the hand; and (3) in the foot. He had, however, seen a case in which the spasm began in the muscles of the back up the neck. The patient described the feeling as if her hair was being pulled from behind; the spasm then extended down to the muscles of the thorax, leg, and arm. In this case a gumma was found in the inner surface of the hemisphere on a level with the corpus callosum. An explanation of this mode of commencement was afforded by Mr. Horsley's experiments, which have shown that movements of the muscles of the back and of the trunk generally are organized on the inner surface of the hemisphere.

In the second type the symptoms begin with intense headache and the patient passes into a somnolent condition, which, after a time,

[1] Dr. Ross refers to more or less parallel cases recorded in *Neurolog:* Centralblatt, Bd. II. 1883, p. 550. Schütz, *Vorstellung eines Geisteskranken mit totaler Anästhesie.*

deepens into coma, and if spasm is at all present it occurs at a comparatively late period of the disease. In cases of this kind the lesion is situated in the area of the anterior cerebral artery.

In the third type the symptoms are ushered in by paralysis of one or more of the ocular motor nerves or by trigeminal neuralgia. Various visual disturbances may be present in the form of amaurosis or some kind of hemianopsia. As the disease advances hemiplegia of one side, and possibly of the other side, supervenes, and the patient passes into a condition of prolonged somnolence, the sphincters are paralyzed, and in the absence of energetic treatment the patient dies comatose at the end of three or four weeks. In these cases the lesion is a syphilitic deposit, which begins about the interpeduncular space and spreads over the base of the brain. The cranial nerves are first implicated as they pass along the base of the brain, and after a time the Sylvian arteries are involved in the first part of their course; the nutrient arteries of the basal ganglia as they pass into the anterior perforated space, become occluded on one or both sides, causing softening in the basal ganglia and internal capsule of one or both sides, and resulting in unilateral or bilateral hemiplegia.

In the *fourth* type the symptoms begin by paralysis of the sixth and seventh nerves, while the patient manifests a tendency to fall to the side of the lesion. In these cases the lesion is situated in the inferior part of the pons, the tendency to fall to the side of the lesion being caused by interference with the transverse fibres of the pons coming from the cerebellum. Labio-glosso-laryngeal paralysis is a well-known result of syphilis.

With regard to the spinal cord, syphilitic deposit is very frequently met with in the upper part of it, opposite the atlas and axis, the congenital variety being frequently found in this situation. The most frequent site, however, is on the level of the junction of the dorsal and lumbar vertebrae. In these cases a band of hyperaesthesia exists often on a level with the distribution of the twelfth dorsal on the one side and the first lumbar on the other. The patellar tendon reactions are generally exaggerated, but occasionally it is exaggerated on one side, and lost on the other, this loss being accompanied by atrophy of the quadriceps. The functions of the bladder, rectum, and sexual organs are usually disordered. Syphilis of the cord is often indeed, ushered in by retention of urine, which soon passes to incontinence if the bladder is allowed to become distended. Paralysis of the sexual function often accompanies the cystic disorder, and in two cases under

my observation paralysis of the sexual function came on suddenly and remained permanent. In these two cases the only other symptoms present were some exaggeration of the patellar tendon reactions, and a transient weakness of the bladder with anaesthetic patches on the perinaeum and scrotum which disappeared at an early period.

Dr. Ross thought that the remarkable case of anaesthesia and paralysis described by the President was an example not of spinal disease, but of peripheral neuritis, being like the cases of universal paralysis described by Dr. Buzzard.

Dr. Clouston (Edinburgh) said he would confine himself to the mental symptoms of brain syphilis. In his experience marked mental symptoms amounting to "insanity" are seen in three forms possibly in four. First we have a delirium in the secondary stage of syphilis. This is a short transient delirium, analogous to what is seen in the high temperatures in children, or the short delirium of true fevers of various kinds. In his experience of brain syphilis this delirium is best seen in those with a strong mental and nervous heredity. This, however, is very rare and is quite curable. The second form pathologically seems to depend upon an acutely formed syphilomatous mass in the cerebral substance interfering with and irritating the brain cortex, beginning as a compact nodule and rapidly extending. You have an acute process of irritation and extensive softening round this mass, and in these cases you have at first mental irritation, secondly, delusional symptoms, these rapidly passing into very acute mania, and the patient dies commonly within a fortnight. This is a form of brain syphilis, which is the worst of all, and is probably incurable. Why a syphiloma should be in some cases a slow and in others a rapid growth killing the patient rapidly, he could not explain. He has seen such brain necrosis frequently, and he is also impressed with the fact that you have such brain softening independent of a primary vascular cause, differing entirely from Dr. Hughlings Jackson's view on this matter. The third form is more common. In it you have a subtile, slow arteritis, beginning usually in some branch of the middle cerebral, and by obstruction of the lumen slowly starving certain areas of the brain cortex. You have no paralysis at first, no anaesthesia, none of the usual bodily symptoms of brain syphilis, but you have first of all an immorality, or lack of mental inhibitory power, then impulsive action, then suspicions with delusions, and then a dementia. Such cases would be curable if

diagnosed and treated in time, but early diagnosis was difficult. In his experience these vascular cases had no headache of any kind, and had no eye symptoms to the end of the case, but many of them had convulsions at a certain stage. Usually the process of neurine starvation affected the white substance first leaving the grey portion of the cortex as a crust almost intact. He had one preparation where almost all the white substance underlying the convolutions of one hemisphere was atrophied and gone while the grey matter looked normal. The question arose—How had the cells of such an isolated cortex energized? The different trophic conditions and sources of blood supply of the grey and white substance of the brain is clearly demonstrated in these cases. In his fourth and last form of brain syphilis you have the mental symptoms very varying and undeterminate. Pathologically you have interference with the brain in a gross form from the syphilitic inflammation attacking the bones, membranes, and the various packing tissues of the brain. The cases are so varied, according to the degree of localization of the lesions, that we cannot bring the resulting mental symptoms under any classification. A syphilitic process might, in his opinion, attack the neurine tissue. Hughlings Jackson says it never does. He had some diffidence in differing from so great an authority, but he believed that he had seen examples, rare no doubt, where the syphilitic process had attacked the neurine primarily. His experience of brain syphilis was almost exclusively that of an alienist. He thought that in the descriptions of ordinary cases of brain syphilis too little attention was paid to interferences with the mental functions of the brain, commonly if not always present, but not amounting to technical insanity.

Dr. Alexander Robertson (Glasgow) drew attention to the fact that the spinal cord, together with its continuation in the skull, seemed more disposed to the degenerative affections of syphilis than the brain proper. (This degeneration of the elements of the nerve tissue, he remarked, has now come to be regarded as a sequela rather than a direct result of the syphilis.) There is, for instance, no disease within the head which corresponds with locomotor ataxy in the cord. We have certainly in general paralysis a resemblance in the anatomical changes, and the two diseases may be associated with each other, or the one may be an extension of the other; but the causation, as a rule, is different in the two cases.

As illustrative of the necessity of taking the statements of patients

on the subject of causation with considerable caution, a case occurred to him recently in the Royal Infirmary of this city. The patient said he never had syphilis. There was, however, a distinct cicatrix upon the glans penis, and it was not till this was pointed out that the patient remembered that he had an attack of the disease when he was a youth.

As regards the diagnosis of the seat of the lesion, when it is at the base of the brain involving certain nerves there is usually little doubt as to its position, for the functions of the parts affected are interfered with and corresponding symptoms are present. So also when the disease attacks the cortex of the brain in its motor region we have definite symptoms—perhaps Jacksonian epilepsy, or monoplegia; but should it be situated in front of or behind that region we have no such assurance, though no doubt if the upper temporo-sphenoidal convolution, or angular gyrus or occipital lobe be affected, we may have indications. But whether we have such symptoms present or not, general systematic percussion of the skull sometimes assists materially in the diagnosis of the case. As a method of examination he did not think it was sufficiently appreciated, and it was particularly useful in syphilis of the brain, which is especially a disease of the cortex, usually beginning in the membranes. By percussion we are able to transmit sufficient force to irritate the diseased part, which is usually hypersensitive, so that the patient, perhaps previously unaware of the existence of a localized pain, by this means becomes conscious of it. In any case in which the symptoms point to the cortex of the brain this method of examination should not be omitted.

As regards treatment, he believed we are all pretty much agreed that in gross lesions mercury and iodide of potassium are the standard remedies, but he was doubtful of these medicines being of value in degenerations such as locomotor ataxy. There is even room for doubt as to a case being one of ordinary locomotor ataxy if it gets better under such treatment. He had got good results from fly-blisters, and had applied as many as ten in succession over painful parts of the head. In one case so treated, the pain, which previously had been very troublesome, disappeared, and the epileptiform convulsions also passed away almost entirely, the patient only having one in fifteen months; though previously his system had been saturated with constitutional treatment, with only comparatively slight improvement.

Dr. C. R. Drysdale (London) said that the study of cerebral syphilis was of comparatively recent date. In 1858 he had seen a case of aphasia in the wards of Dr. Gubler of Paris; but, although the man had been syphilitic, the diagnosis of cerebral syphilis was not considered admissible. In those days few considered that epilepsy, hemiplegia, or paraplegia could be put down to syphilis. At present it had been said that probably four fifths of the cases of hemiplegia occurring in adults under forty were due to cerebral syphilis, and as great a proportion of those cases in which the motor oculi muscles were paralyzed, were due to the same cause. Cerebral syphilis, in his experience, might ensue only a few months after infection, or be postponed till thirty years after that event. In the case of one hospital patient in 1869, hemiplegia and aphasia arose whilst roseola was present, only four months after infection, and a patient of his, a professional man of great distinction, contracted the disease in 1851, and became aphasic in 1871, twenty years after the attack, which in the meantime had often caused other syphilitic symptoms. As a rule the occurrence of cerebral syphilis might be expected between the third and fifteenth year after infection. Perhaps well educated persons were more liable to cerebral syphilis than those who did not use their brain much, and certainly the use of alcohol and tobacco had seemed to him to favour attacks of cerebral syphilis in infected persons. It was not clear whether severe secondary symptoms or mild were more liable to result in cerebral syphilis. But mild secondary eruptions were what were usually seen in modern syphilis. Sclerosis and gummy deposits were what formed the lesions of cerebral syphilis, whether affecting the dura mater, the pia mater, or the vessels of the brain. The lesions were generally seen at the periphery, rather than at the centre of the brain: the sphenoidal region was most commonly affected with specific lesions, or encephalitis, or softening of the brain. Cerebral syphilis might cause partial or extensive paralysis, convulsions, epilepsy, insanity, aphasia, neuralgia, and some said diabetes and polydipsia. It was of great importance for a patient that his case should be recognized as speedily as possible to be cerebral syphilis since the disease was curable so long as the lesions were specific, but became incurable when an artery was obliterated, or the brain had been softened. The first symptom was usually severe and persistent headache. "A headache which lasts," says M. Ricord, "is suspicious; it smells like syphilis." Sometimes vertigo, or convulsions might be the earliest symptoms of cerebral

syphilis; at other times squinting, hemiplegia, or even mania. The syphilitic headache was deep-seated in its character, and the intensity and form of this kind of headache were sometimes quite remarkable. The author had seen cases where the patient nearly became insane from the agony caused by this symptom. Suicide or homicidal violence had been recorded as occurring in such cases. Occasionally there were nocturnal exacerbations. In syphilitic vertigo the patients complained of confused vision, hesitation in speech, and forgetfulness of words, with tottering gait, which might cause falls. Sometimes the patient could not raise the hand to the face without striking the face. Patients might gradually become morose, taciturn, timid, and occasionally passionate and violent, and might sometimes fall into fits of coma. Epilepsy coming on in adult life was most likely due to cerebral syphilis. Essential epilepsy came on in infancy and adolescence. Syphilitic epilepsy greatly resembled ordinary epilepsy, and might be the first indication of brain disease. In one case, a man with syphilis narrowly escaped drowning whilst in a fit, as he was climbing up to set the sails of a ship. Epilepsy came on usually later in the disease, as in the case of a newspaper editor, who contracted syphilis in 1870, and died of cerebral syphilis in 1879. He had headache first of all, then aphasia, and afterwards numerous epileptic seizures. Epileptic fits in cerebral syphilis often became very frequent. It was rare that such epilepsy was long unassociated with paralysis, such as facial paralysis, monoplegia, or strabismus. The memory often became seriously affected, and the patient might pass into dementia. Some of the cases of syphilitic epilepsy were accompanied by lateralized paralysis. One point in diagnosis was that, in essential epilepsy, the patient was in good health between the fits, which was not true in syphilitic epilepsy. The only clear diagnosis was one which the effects of drugs would establish, and large doses of iodide of potassium should at once be given, or inunction employed. Aphasia was now well known to be often enough a symptom of cerebral syphilis. Usually it coexisted with right hemiplegia, but might be solitary, or with left hemiplegia, or monoplegia. It usually came on suddenly. Aphasic patients were usually much damaged in intellect, and unluckily the lesion was often irremedial. Syphilis of the brain might cause all kinds of insanity. In some cases the author had seen it cause furious mania, for which the patient was obliged to be confined in an asylum; in others, it gradually led to dementia. There was

nothing unexpected in the occurrence of melancholia, or mania, or dementia from such a severe lesion of the brain as cerebral syphilis often caused. Suspicious cases of insanity should be treated as syphilitics, and might occasionally be cured by so doing. The frequency with which cerebral syphilis attacked the motor oculi muscles had long been so well recognized that M. Ricord called it the signature of syphilis on the muscles of the eyeball. Optic neuritis and blindness and also deafness were not unfrequently due to cerebral syphilis. Hemiplegia might supervene during the secondary period of gummy products. It might appear suddenly or progressively, and was almost always incomplete. Sometimes there was hyperaesthesia in the paralyzed limb. Sometimes it coincided with weakened intellect, at other times that was not the case. In early adult life hemiplegia was often syphilitic, but it had no clear symptom showing that this was the case.

Prognosis:—Patients with cerebral syphilis, if not cured, usually died in a few years, but some remained alive, but infirm for twenty or even thirty years. Many died very rapidly. Optic neuritis was far more frequently syphilitic than many persons supposed. Fortunately a large number of patients were perfectly and permanently cured of cerebral syphilis, if large doses of iodide of potassium, 20 or 30 grains every four hours, with or without mercurial inunction, were rapidly exhibited for a sufficient time. But the prognosis was very grave, because treatment was often useless, or came too late, where softening of the brain or other incurable lesion had set in. Epilepsy alone was often curable, or headache, or strabismus. The Aix-la-Chapelle inunction plan had done much to convince the world that in desperate cases of cerebral syphilis mercury, as well as iodide of potassium, should be used as a therapeutic agent. This treatment should be rapid, energetic, and sustained.

Dr. Sinclair Coghill (Ventnor) stated that his object in taking part in this discussion was to bring before the Section a most interesting case which illustrated two important points in connection with the treatment of cerebral syphilis. First, The amenability to treatment of even the most unpromising cases; and 2nd, That our remedies should be exhibited with regard to effect, not with reference to dose.

The following were the details of the case: The patient, a young man aged 22, had become infected with syphilis when studying hard at Cambridge just before taking his degree, which probably accounted

for the particular organic system attacked, and the rapid development and progress of the disease subsequently. He was supposed to have complete intolerance of iodide of potash, and he was treated principally by mercurial inunction. In November, 1886, he was in a very distressing state. He was covered with rupia, was aphasic, quite off his head, and had no control over his bladder and rectum. He (Dr. Coghill) saw him at this time, and communicated with his medical attendant, who told him he was insuperably intolerant of the iodides. Various combinations of the iodides and mercury were tried without success. His condition became greatly worse. He had ultimately to be placed under restraint and fed artificially. He (Dr. Coghill) thought that advantage might be taken of the well-known fact that large doses of the iodides are tolerated when smaller ones disagree; and accordingly he gradually increased the doses of the iodide of potash to the following extent: He was under treatment by the iodide 189 days, and during that time he took 635½ drachms of iodide of potash. The average daily dose was thus 3 drachms, 22 grs. The highest daily dose was 6¼ drachms continued a week at a time, for a period of six weeks. He occasionally interrupted this treatment, but always with disastrous effects. The patient was seen in consultation with Sir Walter Foster, and subsequently with Dr. Buzzard, who approved of the diagnosis and treatment, but stated that he had never seen such a case recover. He, however, steadily improved, and is now in perfect health.

There are several points in this case which are extremely interesting. No doubt the vascular system of the brain was the seat of the lesion. At intervals he had delusions exactly similar to those of delirium tremens, but never at any time attacks of an epileptiform character. He believed, from the special character of the symptoms, that the action of the syphilitic poison was on the coats of the vessels, and mainly confined to the cortex of the brain. With reference to the treatment of syphilis, our remedies are very limited. We have only two, and may either use them independently or in combination with one another. Mercury by itself, when judiciously employed is the best remedy, especially in the earlier stages of syphilis. He was brought up in the Edinburgh school to be sceptical as to the influence of mercury upon syphilis, but soon was convinced of its power. No doubt iodide of potash is also a most valuable remedy, especially in the so-called tertiary stage, but there are some cases again in which a combination is most efficacious. When he suspended

the exhibition of iodide of potash in the case mentioned, and tried to soothe the nervous system with bromide of potassium and chloral, he failed, and had immediately to go back to large doses of the iodide, under which the amelioration continued.

Dr. Oswald Ziemssen (Wiesbaden)—Being but a visitor of this Association, and not even knowing the subjects of discussion beforehand, I did not intend to address you, but after all that I have heard here, I really feel induced to make some short remarks. At first I may state that, according to my experience, the syphilitic diseases of the nervous system really have not such a bad prognosis as would appear from the latter part of the discussion. During twenty years' practice I have treated a large number of those cases. Cerebral syphilis combined with aphasia, hemiplegia, paralysis of different cerebral nerves (sensory and motor), tabes dorsalis, paralysis spinalis spastica, paraplegia, etc., have been cured. Some patients made such progress that they still serve as officers in our army, ride, have married, and have happily become fathers of children.

According to my opinion the difference of the prognosis is caused by a different treatment having been adopted. I may say that I should have liked to have heard something more with regard to this point. I do not merely agree with Professor Anderson that the mercurial treatment of syphilis should be strong; I am of opinion that it should be even as strong as possible, and particularly for those cases which are as interesting as they are obstinate. For this reason I recommend the inunction treatment. Mercury being a poison, we always have to reckon with the possibility of giving too much. If this happens, and it produces dysentery, stomatitis, etc., the mercurial ointment can be easily washed off and its further absorption will thereby be stopped at once. All other applications of mercury, particularly subcutaneous injections, do not allow of this being done. The injected mercury not yet being absorbed, but deposited under the skin, cannot be removed but by means of the knife, which would be a painful operation for the patient. I may state that I often apply a daily dose of from 3 to 4 drachms, the ointment having the strength of two parts mercury to one of lanoline or vaseline.

Dr. Byrom Bramwell said he agreed in the main with the propositions which the president had laid down in his admirable paper for the diagnosis of syphilitic lesions of the nervous system. Personally

he attached great importance to the variable, anomolous, and multiple character of syphilitic nerve lesions; to the fact that in the case of "coarse" cerebral or spinal lesions, syphilitic lesions were so generally superficial, involving the membranes or nerve trunks; to the age and sex of the patient; to the muddy anaemic complexion to which the president had pointedly alluded. He agreed with the president in thinking that brain syphilis was at least as prevalent in hospital patients and uneducated persons as in the upper classes. He thought that one explanation of this frequency was probably to be found in the fact that the working classes were more exposed to head injuries, which were, in his opinion, even more important exciting causes of cerebral syphilis than intellectual strain or overwork. He agreed with Dr. Ross as to the great diagnostic value of headache, though he fully admitted with Dr. Clouston that where the lesion affected the smaller vessels alone and did not involve the membranes, headache might be entirely absent. In this connection he directed attention to the relationship of syphilis to general paralysis of the insane. For his own part he was disposed to think that this relationship was analogous to that of syphilis to locomotor ataxy. He agreed with those who thought that in many cases syphilis was an important factor in the production of cerebral paralysis, and that some cases which presented all the typical symptoms of general paralysis of the insane, which, in short, every one would diagnose as general paralysis of the insane, materially improved, and in exceptional cases got quite well under vigorous antisyphilitic treatment. He agreed with Dr. Robertson as to the great diagnostic value, in some cases, of skull percussion. He briefly alluded to the fact that sensory Jacksonian epilepsy was apparently so very rare, as compared with motor Jacksonian epilepsy, and mentioned a case which he had recently recorded, and in which *post-mortem* examination had subsequently shown the presence of an old syphilitic cicatrix on the outer surface of the tip of the occipital lobe. With regard to treatment, he thoroughly agreed with the speakers who had advocated the administration of large doses of iodide of potassium. One might almost as well give water as administer 5 or 10-grain doses of iodide of potassium in many cases of cerebral syphilis. Personally, he was in the habit of giving 20, 30, or even 60 grains several times a day; and he agreed with the president in thinking that in many cases in which the iodide alone was unable to effect a cure, improvement occurred upon the addition of mercury. He

emphasized the importance of continuing the administration of the iodide for long periods of time. He had been much disappointed with the relapses which not infrequently occurred after a complete cure had apparently been effected. He also referred to cases such as Professor Grainger Stewart had mentioned, in which a cicatrix remained after a syphilitic lesion, and continued to act as a local source of irritation and discharge. Everyone would, he supposed, agree that, in cases of epilepsy due to such a cause, in which the cicatrix could be accurately localized, the cicatrix should, if possible, be removed by operative procedure. The surgical treatment of old syphilitic deposits had recently been considered by Dr. Seguin of New York, with whose views Dr. Bramwell agreed.

Dr. Stretch Dowse (London) said—There are so many interesting points relative to this subject under discussion that it is impossible for me to deal with them *seratim*. I feel compelled, however, to preface my remarks by saying that in my opinion, and in my experience, the syphilis of to-day differs in many ways from the syphilis as I was first led to observe it some thirty years ago.

I now not unfrequently see large gummata existing side by side with the primary syphilitic sore, and I see also actual paralysis and other nerve troubles co-existing with the roseolar eruption upon the skin, and I cannot doubt from this evidence alone that gummata can and do exist in the early stages of syphilis, and that these changes are associated with the nerve tissues.

I would say concerning the effect of syphilis upon nervous tissue, that we must consider its influence, like that of other diseased conditions, from three definite stand-points, viz., the anatomical, or the seat of lesion ; the physiological or the functional nature of the lesion ; and thirdly, the pathological, the disorders resulting from derangement of the nutritive processes. The usual anatomical seats of syphilitic lesions in the brain, giving rise to objective signs and producing the varieties of paresis, are located for the most part in the cortical motor area of the cerebral convolutions, or in the membranes adjacent. Their influence upon these centres may be indirect by pressure upon the grey matter, or direct by actual invasion and disintegration of the cortex. Dr. Hughlings Jackson has very decided opinions relative to syphilis and nerve structures. He holds that syphilitic lesions never arise in the proper nerve substance, but that the products of syphilis arrest the function of brain areas by produc-

ing atrophic changes, either by pressure on the one hand, or by failure of nutrition of the nerve cells through plugging of the vessels on the other. I cannot quite accept this doctrine as finite, but Dr. Jackson, from our pathological knowledge, however incomplete, is quite justified in making this statement.

Gummata have then apparently a selective affinity for certain motor areas of the grey matter, but we must also take into account other areas of the brain which are subject to the influence of syphilis, and evidenced almost exclusively by subjective symptoms. Thus I would divide these areas in relation to their functional potentiality, and in order of frequency of occurrence—1st, motor-physical; 2nd, sensory-sensorial; 3rd, psychical-ideational; 4th, motor-sensory-sensorial; 5th, psycho-motor-sensory-sensorial. The first divison, I say, is the most common, and is most frequently associated with motor areas giving rise to motor muscular defects, say, palsy of the third nerve. The second division is frequently, but by no means necessarily, associated with the first. The third division involves the prefrontal and occipital cortical areas, and is less common than the foregoing. The fourth division is well instanced in tabes dorsalis, and the fifth in general paralysis of the insane.

I certainly believe that syphilis is as productive of general paralysis of the insane as it is of tabes dorsalis. The two diseases are really the same, development alone altering type; it is simply a question of the level of dissolution according to the anatomical area involved.

Now these divisions, when fairly recognized, will tend to aid our knowledge of functional convolutional areas of the brain, but careful and accurate clinical observation with the most minute pathological investigation are absolutely necessary.

No one who is acquainted with the pathology of syphilis can doubt the fact that molecular necrobiotic endarterial change (not necessarily gummatous, or attended with inflammation) is as common to the circulation of the brain as it is to any other organ in the body, and we know the result must be atrophic, and arrest of function in those areas of nerve matter starved, as it were, for want of nutritive pabulum from the blood.

Syphilis then of nerve cells is at the present time an unknown quantity. But I think it must be conceded that direct or rather intrinsic molecular change does take place in the plasma of the nerve cell itself in the earlier stages of syphilis. If this were not the case,

how, may I ask, are we to account for the defective nutritional processes associated with syphilized tissues. The wizard-like sensory and sensorial derangements, the instability of nerve cells, the impairment of anabolic functional activity and general defective metabolism are so productive of necrobiosis of tissue in the syphilized that it can scarcely be admitted that nerve structures (proper) are not influenced, and pathologically influenced by its catabolic action.

We want to know more of the action of syphilis upon the organic system of nerves and their ganglia, and especially of the whole vaso-motor system. Coarse and gross syphilitic changes of binding tissues are ever present to us, but we are not even on the threshold of knowledge of those subtle and perhaps fleeting pathological changes which must exist, but which, as yet, are lost on the horizon of obscurity. My time for speaking has expired, but I should like before sitting down to draw your attention to the value of the iodide of potassium in one-drachm doses. I find one dose daily most effectual, and rarely attended with the troublesome symptoms which so frequently follow its administration in doses of 2 or 5 grains. It should be given in a tumbler of water just before a meal.

Dr. William Moore (Dublin) sent the following notes on syphilitic paralysis and its treatment :—

Case I. Syphilis followed by sore throat, rheumatism, cervico-dorsal neuralgia, paraplegia, recovery. Treatment—Five-grain doses of iodide of potassium, with one sixteenth of a grain of strychnine three times a day. Electro-galvanism applied along the spine. After one month's treatment recovery complete.

Case II. Syphilis followed by secondary symptoms, iritis, convulsions, and hemiplegia. Treatment—A combination of iodide and bromide of potassium. Recovery.

Case III. Syphilis followed by eruption, headache, hemiplegia, convulsions. Treatment—Iodide of potassium alone. Recovery.

Case IV. Repeated syphilitic attacks followed by secondary symptoms, rheumatism, occasional diplopia, opisthotonos, loss of muscular control, progressive motor ataxy. Treatment, which extended over three months, was the iodide and bromide of potassium, with partially satisfactory results.

Case V. Mixed paralysis. A girl, aged 23, contracted syphilis; this was followed by buboes, sore throat; no cutaneous eruption; afterwards pain in the knee joint. Had a "fit," was completely

unconscious, followed by loss of power of left leg; subsequently lost the power of right arm. On admission into hospital, visible deformity of the face, with loss of power of right arm and right leg; deafness; loss of taste; headache; pain at the nape of neck; facial paralysis of right side; drooping of the left angle of the mouth, partial stosis of left eyelid; a permanently dilated condition of the right pupil; loss of power of the sixth nerve, with double divergent strabismus. Has double vision, giddiness when placed in the erect position, and, on placing the heels together, reels and staggers. There is partial aphasia, complete loss of taste. No appreciable difference in the temperature on either side of the head: no sugar or albumen in the urine. Pulse 88 in the recumbent, 98 in the erect position. No history of paralysis in her family. Treatment—Five grains of Plummer's pill and 8 grains each of iodide and bromide of potassium three times a day. In cases of syphilitic gummata, one sixteenth of a grain of red iodide of mercury, or the green iodide of mercury may be given with advantage; or a combination of mercury and iodide of potassium, or the addition of bromide of potassium as in this instance, on account of the epileptiform seizures which occurred. This treatment was attended with satisfactory results.

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